

AMERICAN

JULY - 1956

# Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY



*In This Issue...*

- Solange's Camera Operation
- Editing Techniques On TV Film
- Putting the Edgar Bergen TV Show On Film

35c

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Du Pont Representative Joe Dougherty (right) is a frequent visitor at Valdes Pictures, Inc. He discusses technical aspects of using Du Pont Film with Mr. Drury.



Shooting an automobile TV commercial requires top performance at every point. The long scale of Du Pont "Superior" 2 captures details in highlights and opens up shadows for best footage obtainable.

Edmund Drury, Director of Photography shooting at Valdes Pictures, Inc., is primarily concerned with filming top product TV commercials. He says, "We're interested in getting highest possible quality... and Du Pont 'Superior' 2 gives better images than any other black-and-white film we've ever used."

# Long scale, speed, fine grain...features that make Du Pont 'Superior' 2 ideal for TV filming!"

—reports VIDEO PICTURES, INC., one of New York's oldest producers

When shooting TV commercials, Video Pictures demands the utmost from a film," says, Edmund Drury, Director of Photography. "Du Pont 'Superior' 2 gives fine grain to catch detail, long gradation and wide latitude to capture middle tones and record the image properly.

"For example, shooting automobile commercials is a case where good middle tone register is extremely important. In addition, clean highlights and remarkable shadow detail obtained with 'Superior' 2 record the set just the way we want it.

"The emulation of 'Superior' 2 Motion Picture Film is more rugged than any we've ever tested," adds Mr. Drury. "It's

much less susceptible to scratches from shooting and processing operations. And, by controlled development, we can increase film speed without danger of enlarging the grain. 'Superior' 2 has proved to be a film we can depend on to show the client's product as he wants it shown!"

Video Pictures insists that the release prints go on Du Pont Type 834 Fine Grain Low Contrast Positive... this film gives the low contrast necessary for good TV reproduction. They use Du Pont 802 B Sound Recording stock for their sound recording to complement the fine results obtained on "Superior" 2 and Du Pont Type 834 Low Contrast Positive stock.

FOR MORE INFORMATION, write or call the nearest Du Pont Sales Office (listed below) or the Du Pont Company, Photo Products Department, Wilmington 98, Delaware. In Canada: Du Pont Company of Canada Limited, Toronto.

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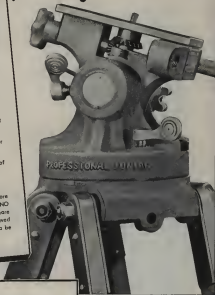
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AMERICAN

# Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY  
PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPHERS

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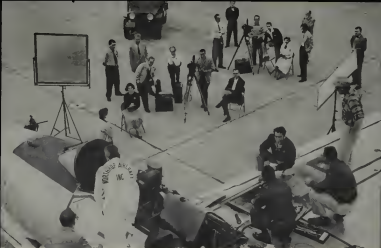
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### ON THE COVER

SOME OF THE near-Merkell 35mm cameras that are used in photographing the Edgar Bergen TV show, "Do You Trust Your Wife?" are pictured on the cover this month. Show, which takes place before studio audience, is filmed continuously. Director of Photography, Dan S. Clark, A.S.C. (center, foreground) looks on eye on the cameras in photographic progress. In background, Edgar Bergen with wife, Eleanor, interview two contestants. In Bergen's right is associate Bob Leonard.

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Manufacturers Twenty Member Motion Picture Guild sets up to shoot Northrop F-87D all weather jet interceptor for sequences in Northrop's new "Snowdrift" film.

## INDUSTRY'S USE OF 16MM CAMERAS BROADENS

### Northrop Aircraft Demonstrates Expanded Industrial Use of Mitchell Cameras

Over 100,000 feet of film were shot last year by two 16mm Mitchell cameras operated by a full-time motion picture unit at Northrop Aircraft. Operating daily throughout the year, these 16mm cameras provide impressive evidence of the rising role of professional motion picture equipment in American industry today.

Northrop, a leader in airplane and missile manufacture, makes diversified use of these Mitchell cameras. Motion pictures range from employee activities to engineering test films—where re-shooting is impossible and where steady, accurate, consistent films of superior quality is consistently delivered by Mitchell cameras.

No other single camera is today used by American industry for such a broad range of filming requirements as is the Mitchell camera. Easy operating Mitchell cameras help create safer, more delivery schedules, and systematic and accurate research and development. For details about Mitchell equipment that will meet your specific needs, write today on your letterhead.



Alvin Karpis and pilot Bill Lee and Colonel Martin Miles being filmed by Mitchell cameras for Northrop Public Relations Department.

For Quality Control Film, Mitchell camera serves in test film shots of Douglas F-87D.

16mm Reel-to-Reel of test jet F-87D in deep. Used on 16mm Engineering Test film.



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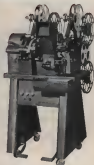
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## TWO DOLL(IE)S WIN SUPPORTING AWARDS

Miss Jo Van Fleet wins Academy Award for  
"Best Supporting Actress" in "East of Eden"  
Warner Brothers.

J. G. McAlister Dual Steering "Crab Dolly",  
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# HOLLYWOOD BULLETIN BOARD

News briefs about the A.S.C.

its members, and important

industry personalities



INTRODUCED to ASC members at Society's June 4 meeting by Consolidated Film Industries' Ted Rusch (left) was Jack Goetz of same company. Later subsequently was elected to Associate Membership in the Society.



VICTORY SIGN is given by actress Ruth Roman after winning cinematographer Win Taylor's photography of Edmund Granger's SSC production, "Great Day in The Morning," starring Miss Roman, Bob Stack and Virginia Mayo.

Harry Squire, ASC, cinematographer for the first two Cinecitta features and the current Cinecitta production, "Seven Wonders of the World," played out for London last month with Lowell Thomas to begin shooting of the fourth Cinecitta adventure spectacle, which is to be directed by Otto Lang, noted for many Hollywood feature film successes.

A Globemaster flew the Cinecitta camera and crew to New Delhi, India, where the expedition will begin its trek into remote valleys beyond the mountains.

Ellsworth Fredricks' notable photography of William Wyler's "Friendly Persuasion" is gaining raves and praise before the picture is released.

In a recent "sneak peepies," 15 occasional cards turned in by persons in the audience complemented the picture's photography.

And the Hollywood Reporter's Mike Connolly commenting on the picture wrote in his column: "... The great, GREAT performances in 'Persuasion,' however, are by Gary Cooper and the cameraman. Latter's lavishly, loving lensing of a Quaker community in Indiana in 1862 is akin to conjuring the verb 'to love' in three-quarter time."

Harold Stine, ASC, who directs the photography of the Warner Brothers' TV series, "Cheyenne," starring Clint Walker, will be behind the camera on this series for another year, having had his contract renewed for another 12

months. This well-photographed video film series is seen weekly over the KABC-TV network.

Mock Stengler, ASC, who has directed most of the TV films produced by Guild Films, Co., Inc., last month began the photography of a new series for the same company titled "Captain David" (Continued on Page 307)



ODELE MORRIS, British cinematographer who photographed John Huston's "Moby Dick" and who met a Hollywood earlier last month, met a guest of the American Society of Cinematographers. He spoke briefly on the photography of the Huston production, now in release.

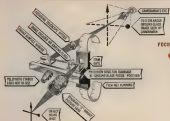


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Hollywood**



# Photographic Assignments

JUNE • 1956

Who, where and what the industry's cameramen were shooting last month.

## ALLIED ARTISTS

- **EXTORT HALLER, ASC.** "The Great Town," with John Ericson and Man Blumhard Lew Landers, director.
- **CARL GOTTHARD, ASC.** "The Oklahoma," (CinemaScope & Color) with Jeff McGee and Vanessa Brown. Finlayson, director.
- **JERRY McFARLANE.** "Face of This Earth," with Paul Burke and Beverly Garland. Roger Corman, producer-director.
- **FLANSHOFER, FREDERICK, ASC.** "54 West 52nd Street," (CinemaScope & Color) with George Montgomery and Meg Randolph. Paul Landers, director.
- **HARRY NEUMANN, ASC.** "Bringing Up Jess," with Hetti Hall and Joe Lanning. Jess Yorklaugh, director.

## AMERICAN NATIONAL

- **CLAU FETTER, ASC.** "The Man Called X," TV, (Ziv-TV) with Harry Sullivan. Eddie Davis, director. "Scarlet Furrow Theatre," TV, (Ziv-TV) Paul Golder, director.
- **BILL HOFFMAN.** "West Point Story," TV, (Ziv-TV). Don Wren, director.

## BULWORTH STUDIOS (New York)

- **J. PEARL LUTHEIN, ASC.** "Four Boys and a Gun," (Security Pictures for U. A. release) William Becker, producer-director.

## CALIFORNIA STUDIOS

- **FLEET SOLORHUNT.** "Gammaside," TV, (Film Center Prod.) with James Arness and Donald Warner. Ted Post, director.
- **LEONARD ARNOLD, ASC.** "The Life of Riley," TV, with William Boudka. Abby Berlin, director.
- **HUI McARTHUR.** "O. Henry Playhouse," TV, (Green Krome, Inc.) with Thomas Mitchell. Peter Godfrey and Barney Guard, directors. "Dr. Huggins' Secret Journal," TV, (Warner, Inc.) with John Howard. Peter Godfrey, director.

## CAETNEY SOUND STAGE

- **WILLIAM WINTER, ASC.** "The Lone Ranger," TV, with Clayton Moore and J. Sherrylock. Earl Bellamy and Oscar Rudolph, directors.

## COLUMBIA

- **KIT CARSON.** "Father Knows Best," TV, (Screen Gems) with Robert Young. Jacques Tourneur, director.
- **CHARLES LINTON, ASC.** "Full of Life," with Judy Holliday and Richard Conte. Richard Quin, director.
- **DEBORAH DICKINSON.** "Fire Down Below," (Warlock Prod. shooting in Trinidad) with Eric Roberson, Robert Mactham and Jack Lemmon. Robert Parnick, director.

- **GARY ANDERMAN, ASC.** "The Laundry Hand," TV, (Punchbox 90 Screen Gems) with Frank Lawrence and Barbara Hale. James Nelson, director.

- **IRVING LIPMAN.** "Ford Theatre," TV, (Screen Gems) with Phyllis Kirk and Phil Carey. Tony Leader, director.

- **PAUL JACKMAN, JR.** "Run-Tin-Tin," TV, (Screen Gems) with Lee Amler and James Brown. Harry Gamst, director.

- **BERNARD GIFFEY, ASC.** "Lad As a Man," (Herman American Prod.) (Shooting in Florida) with Ben Constan. Jack Garlick, director.

## WAIT DIBBIT

- **GORDON ABE, ASC.** "The Mickey Mouse Club," TV. Sol Miller, director.
- **WEINER CASTLE, ASC.** "The Dairy Story," TV. William Beaudine, director.

## FLORIO A

- **BILL BRADSHAW, ASC.** "Buffalo Bill, Jr.," TV, with Dickey Jones and Pappy Chabon. George Arctand and Frank MacDonell, directors. "Amaro Gulch," TV, with Gale Davis. George Arctand and Frank MacDonell, directors.

- **LESTER WHITE, ASC.** "How Christian Science Heals," TV (Columbia Inc.). Robert G. Walker, director.

## JERRY FAIRBANKS STUDIO

- **JERRY FAIRBANKS.** "Once Upon a Honeymoon," TV (American Tel & Tel). Gilbert Chapman, director.

## FOX WESTERN AVENUE STUDIOS

- **LEONARD ARNOLD, ASC.** "Rendezvous of the Sea," TV, (ITC-TV) with Jean YVES and Michael Wilding. Lewis Allen, director.
- **KARL SORON, ASC.** "My Friend Flicka," TV, (ITC-TV) with Gene Louis and Anita Louise. John English, director.

## GENERAL SERVICE STUDIOS

- **RAY FORTER, ASC.** "Parks Commercial TV," (Memory International). T. Golden, director.

## GOLDWYN STUDIOS

- **LEE GARNER, ASC.** "The Sharkfighters," (CinemaScope & Color) (Samuel Goldwyn Inc. Prods. (A release) (Shooting in Cuba) with Victor Mature and Karen Steele. Jerry Hopper, director.

- **GRACE CLEGGING, ASC.** "Scholar Phonograph of Stars," TV, (Mendham Prods.). Various directors.

## INDEPENDENTS

- **FRANK PRAGER, ASC.** "The Pride and the Passion," (Technicolor, Aristovision. Stanley Kramer Prod. for UA; shooting in Spain) with Cary Grant and Frank Sinatra. Stanley Kramer, producer-director.

- **GEORGE BARNHART, ASC.** "Dance With Me, Henry," (Dick Goldstein Prod. for UA) with Abbott and Costello. Charles Burton, director.

- **LEE CAMPER, ASC.** "The Big Boodle," (Lewin Shandberg Prod. for UA release, shooting in Cuba) with Ronny Flynn and Suzanne Rory. Richard Wilson, director.

- **HAROLD LINTON, ASC.** "Squire Boone," (Elyria Prods. UA release) with Betty Hutton and Dean Jagger. Robert Aron, director.

- **WILLIAM MARSHALL.** "Mark of the Apache," with Chuck Connors and Susan Cummings. Lesley Schander, director.

- **LEONARD BELLARD, ASC.** "The King and Four Queens," (Blue Bird Prods. for UA release) (Color, CinemaScope) (Shooting in Utah) with Chuck Gable and Eleanor Parker. Raul Walsh, director.

- **JAMES WILSON HOWE, ASC.** "Drings," (Earlham Prods. for UA release) with Jeff Chandler and Joanne Van. John Brown, director.

- **CHARLES STRUMER.** "Badge of Marshal Brennan," (Albert C. Greenway Prod.) with Carl Smith and Mary McInnis. Albert C. Greenway, producer-director.

- **BRODER LAMBERT, ASC.** "Love Story," (Dick Goldstein Prods. for UA release) with Barbara Stanwyck and Sterling Hayden. Gerd Oswald, director.

- **FRED WEST, ASC.** "The Fish and the Seal," (Color) (Shooting in Valley Harbour) (By Permit for American International release) with John Arne and Maria English. Edward L. Cahn, director.

- **WILLIAM M. CLINE, ASC.** "Hidden Fear," (Shooting in Copenhagen) (St. Aubrey-Cuba Prods. for United Artists release) with John Payne and Natalie Narkovic. Andre De Toth, producer-director.

## KITTY

- **STUART TROSBACH, ASC.** "Lovers," TV, (Robert Maxwell Prods.) with Jan Clayton and George Cleveland. Les Schander, director.

## METRO-GOLDWYN-MAYER

- **HENRY SHERMAN, ASC.** "Hunting County," (Color and Color) with Montgomery Clift and Elizabeth Taylor. Edward Dmytryk, director.

- **RUSSELL HARTMAN, ASC.** "Testimony of the August Moon," (Color, CinemaScope) (shooting in Japan) with Marlon Brando and Glenn Ford. Daniel Mann, director.

- **FRED A. YOUNG, ASC.** "The Barrens of Winnipeg Street," (CinemaScope & Color) (shooting in England) with Jennifer Jones and St. John Garfield. Sidney Franklin, director.

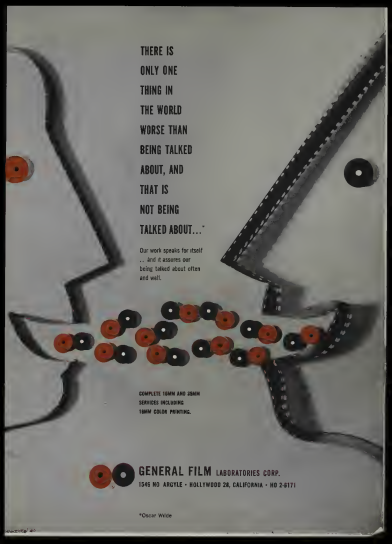
- **ARTHUR E. ARLING, ASC.** "The Great American Pastime," with Tom Ford and Anne Francis. Herman Hoffman, director.

## NOTION PICTURE CENTRE

- **NIKE MEYER, ASC.** "The Line Up," TV, (Dapple Prod.) with Warren Anderson. H. Mann, director.

- **ROBERT DE GRASSE, ASC.** "A Love Lacy," TV, (Dapple Prods.) with Lucille Ball and Desi Arnaz. James Kern, director.

(Continued on Page 44)



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ABOUT, AND  
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**MOVIELAB FILM LABORATORIES, INC.**

619 West 54th Street, New York 19, N. Y. JUDSON 6-0360

## BULLETIN BOARD

(Continued from Page 386)

Grief," based on a famous Jack London character. Producer is Duke Goldstone; director is Stuart Heiler.

• • •

**Ray Fernstrom, ASC**, and William Miller, ASC, recently photographed sequences for a special 12-minute short subject, "The Miracle of Todd-AO," which demonstrates the audience-participation process of the Todd-AO wide film camera. The Todd-AO company has long desired to show the industry and the public that its one-projector, wide-screened screen process is fully capable of all the thriller performances of other super-wide-screen processes. The film will be shown as a comparison subject with all future screenings of "Oklahoma!"

• • •

The coming month will see six of MGM's directors of photography shooting pictures off the lot in distant locations: John Alton, "Treasure of the Aztecs";

(Continued on Page 448)

### AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1918, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture and TV film studios. Its membership also includes nonresident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

•

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# THE WORLD'S MOST COMPLETE ASSORTMENT OF PHOTOGRAPHIC EQUIPMENT FOR

## T.V. and Motion Picture Studios

### New PROFESSIONAL JUNIOR

Adjustable wood **BABY TRIPOD**

—for Prof. Jr. friction  
and geared heads



Box construction steel and wood.

Measures from floor to range

25" extended — 12"

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"controlled  
action"

SMALL **GYRO**  
**TRIPOD**

Two speeds—slow and fast  
—for both panning and tilting.  
Helps you capture fine action shots  
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cially recommended for 16mm Mitchell,  
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and similar cameras.

**\$600**

### PACKAGED LIGHTING WITH **COLOR-TRAN**

—studio lighting in a suitcase



Imagine being able to use two 2800 watt bulbs  
on a 30 amp line — **COLOR-TRAN** will do it!  
It contains 2 light heads, 2 superior stands and  
proper size **COLOR-TRAN** transformer to match.  
Packed in compact case.

Series B3  
**\$265.00**

Other styles  
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Write for **COLOR-TRAN** Catalog.



### STOP MOTION MOTOR FOR CINE KODAK SPECIAL

Runs forward or reverse, 110  
AC synchronous motor with frame  
counter. May be run continuously  
or for single frames. Camera  
moves without special tools.

**\$550**

Also available—Stop Motion  
Motor for 16mm—35mm & 8 H,  
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### ELECTRIC FOOTAGE TIMER

Dual model for both 16mm  
and 35mm. Large wide window  
reads on black background. Accu-  
rate reset dial. Switch controlled  
by operator, who selects either  
16mm operating at 24 feet per  
minute—35mm operating at  
36 feet per minute . . . or both  
in synchronization. **\$95**

Single model, either 16mm or  
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### preste-splicer GIVES PERMANENT SPICE IN 10 SECONDS!!



Especially good for splicing magnetic  
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or perforated film. 16mm, 35mm or  
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### GRISWOLD HOT FILM SPLICER

Model B-2 for 16mm silent and sound  
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Also Ball & Beall 16mm, 35mm and  
35mm Hot Splicers and A & H Labora-  
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\*P.5mm Lenses in 16mm C mount. 18.5mm (extreme wide angle-flat field)  
Lenses available in mounts for all 35mm Motion Picture Cameras.  
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\*Griswold & B&H Hot Splicers. \*DOLUES—Bondwell-McAllister, Hale  
Richardson, Century and Calatron Lighting Equipment.

Complete line of 16mm and 35mm Cameras

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## CINEKAD JUNIOR TRIPOD DOLLY

Used Nationally by Discriminating Cameramen



### This 3-Wheel Collapsible Tripod Dolly Is . . .

essentially designed to meet the demand for an unusual mobility of cameras on location or in the studio.

Dolly can be used with any professional or semi-pro tripod. The dolly is featured built to the dolly by a clamp at each leg tip. The special individual center locking system makes it possible to lock either two or three wheels in a parallel position, enabling dolly to track in a straight line for rolling shots.

Dolly folds easily into a stable compact, with its carry with 22 inches in height, weighing 14 lbs.

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This issue will be read in virtually every film production center in the United States and in over 70 foreign countries.

It will reach more studio cinematographers, TV film cameramen and producers, industrial film makers and advanced amateurs than any other technical publication in the motion picture field.

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## Industry NEWS

John A. Pistor, Distribution manager of the Motion Picture Sales Dept. of Eastman Kodak Company, has joined in an executive capacity W. J. Geiman, Inc., Hollywood, according to Edward Blackburn, Vice-president and General Manager.



John A. Pistor

Pistor, who formerly resided in Brighton, N. Y., joined Kodak in 1933. He served briefly in the Physics Division of

Kodak's research laboratories and with the Quality Control group in the Finished Film Department at Kodak Park Works. He joined the company's motion picture film sales department at Kodak in 1946 where he has handled the scheduling and distribution of all Eastman professional motion picture films.

He is a member of the PSA and the SMPTE.

**Demonstrations of the new Edison "4m 1/2" film editing machine** in a number of eastern film production centers has been announced by J. G. McAlister, Inc., Hollywood, Calif.

Mr. Irving Yates, sales manager for McAlister, will meet with film producers and TV executives from August 19 to October in the following cities: Oxford, Mississippi.

University Motion Picture Association (Concert)	Aug. 19-25
Chicago	Sep. 1-7
Detroit	Sep. 16-18
Cleveland	Sep. 14-15
Dayton, O.	Sep. 17-20
Washington D. C.	Sep. 21-30
New York	Oct. 1-7

Appointment information may be had by writing J. G. McAlister, Inc., 1117 So. McCadden Pl., Hollywood 38, Calif.

**High-speed Ansacolor** 16mm color motion picture film is now being sold without the cost of processing included in the purchase of the film. According to Ansco, more is result of demand from government and industrial users as well as television and rewired companies.

Availability of the film without requirements for factory processing makes it possible for users engaged in confidential work to maintain full security.

(Continued on Page 412)





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### MERCER FILM PATCH

Descriptive Chart & Price List  
Mailed on Request

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4242 National Ave., Hollywood 28, Calif.  
(Hollywood 5-9103)



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400 NORTH WACHER DRIVE-CHICAGO 8  
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**8 and 16mm SERVICES**

# BROOKS CAMERAS

The House of Famous Brand Names

Prices subject to change  
without notice

## NEW ARRIFLEX 16



The only 16mm camera providing through the lens focusing and viewing during exposures, electric motor drive. Movie lens, cables . . . \$175.00  
35mm Series 1/2.8 lens . . . \$175.00  
25mm Series 1/2.8 lens . . . \$175.00  
75mm Series 1/2.8 lens . . . \$200.00  
Zoomer lens 1" to 3" 1/2.8 for Arriflex . . . \$275.00  
Arriflex Model 18 Tripod . . . \$175.00



## COLORTRAN JUNIOR KIT

Here, in one handy package, you have the equivalent illumination of 3000 watts of current from a 15 ampere fuse! Compact but fits any set camera everything you'll need for perfect lighting - a shade in a suitcase! Includes 2 Greenline lamps with 8 feet aluminum stands. All units have built-in shutters and diffusion grids for light control. . . \$199.95  
250Watt KIT - produces equivalent of 5000 watt illumination from a 30 ampere fuse. . . \$285.00  
250W KIT - Contains 3 spotlights with a flexible luminaire plus 4 stands. Same as red diffusion for spots. . . \$375.00



## PRECISION SOUND READERS

Made by Precision Laboratories . . . first generation of the finest in sound editing instruments. Simple threading - polished stabilizer drum with needle bearings, with a surface which cannot damage film. Film retracts machined to precision with 500°F. standards, and equipped with silent bearings - precision ground shafts - dimensions 8" x 8" x 7 1/2"

Amplifier, 117 volts - 60 cycle - AC. Power output - 4 watts. Heavy duty Alesis V speaker - 4 watts. Heavy duty cord. . . pilot light - 6 B. Heavy duty case.

Optical Model 500 - 35mm and 16mm . . . \$195.00  
Magnetic Model 200 - 35mm, 16mm and 8mm . . . \$165.00  
Optical Magnetic Model 300 - 35mm, 16mm and 8mm . . . \$230.00

West's Largest Selection  
Budget Terms Available

## MAGNASYNC X-400 RECORDER

A cassette sound system that reaches only 37 db! Features high gain "long-life" microphones, thermal, aging compensation for "steady-state" selection, built-in balanced playback system for 30W direct monitor. Features Magnasync "quad" magnetic film transport, high speed rewind, sync speed reverse and fast forward. Can select a range limit for "sync marking" - storage sounder, extended capacity tape, "auto detect" mount for special system. (Sound directly guaranteed) . . . \$495.00  
Magnasync is a speaker, amplifier and accessory unit . . . \$97.00  
4 position "blast", high level mode in 1/2" V-mount mounted in case . . . \$215.00



16mm  
CINE-VOICE

AURICON CINE-VOICE  
popular priced 16mm camera that photographs a sound track, perfectly synchronized with the picture - can be placed on trip, 35mm, 16mm and 8mm. Single lens model. New . . . \$495.00  
used . . . \$445.00  
Turret model for 1 lenses . . . \$784.50

## AURICON PRO-300

16mm optical sound on film, self-terminated, sync motor drive for easy to use double system recording. Fluorescent tube up, film flow without system clutch or belt. Variable synchronous at constant rate available. . . \$1195.00



SUPER  
1200

## AURICON "SUPER-1200"

16mm sound on film camera (16-8mm) with 2 lens barrel for "C" mount lenses. 1200 ft. magazine for 30 minutes recording time. \$639.00

AURICON PRO-TILT adapter kit \$240.00, \$275.00

AURICON PRO 120. Max 31,495.00 - New - Used \$265.00

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wherever movies are made!*

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# Cinematographer

American Cinematographer has consistently surpassed all other publications in the amount of advertising carried on film production equipment and services. Advertisers—large and small—know from experience that American Cinematographer produces the best results—gives the most returns per advertising dollar.



# NEW F & B "CINEVOICE 400"

F&B's new Cinevoice CONVERSION for 400 ft. magazines . . .

- DOES NOT cut down your camera . . .
- DOES NOT require an auxiliary motor . . .
- CAN STILL be used as the original 100 ft. camera when necessary.

A special needle bearing take-up system and ball bearing magazine shafts make possible the superbly smooth, steady and jam-free operation. (After finished or full & Howell 400 ft. magazines may be used in F&B conversion and in 10 seconds, the magazine can be removed, the light trap closed, and the Cinevoice is ready for operation as a 100 ft. camera again.

## PLUS . . . ALL THESE BUILT-IN FEATURES

1. SILENCED VEEDER footage counter.
2. Built-in behind the lens fiber slot, with two fiber holders.
3. Headphone jack built in camera.
4. Cannon plugs for all sound sockets.
5. Triped socket reinforced with brass insert.
6. New neon signal light.

## PLUS . . . COMPLETE REFINISHING . . .

Your Cinevoice camera and 400 ft. magazine completely overhauled, cleaned up and refinished in beautiful, professional black oxide finish.

YES . . . F&B "CINEVOICE 400" IS THE LOWEST PRICE CONVERSION AVAILABLE . . .

For Complete new outfit . . .

Small Cinevoice plus F&B conversion  
and 400 ft. 98H magazine ——— \$299.00

PRICE ONLY \$345.00  
not including magazine



## AUTOMATIC SPLICER SPUCE-O-FILM

for Brun-Tenon combination & 35mm  
with the Exclusive PRESET SCRAPER!



### A PERFECT SPUCE EVERY TIME AUTOMATICALLY!

The major cause of film failures is poor splicing . . . and the major cause of poor splicing is improper scraping (either too much or too little). SPUCE-O-FILM solves both of these problems with its automatic scraper that takes off exactly the right depth of emulsion every time . . . regardless of applied pressure. SPUCE-O-FILM is a precision tool . . . imported from England. It has a precision-ground, tungsten steel scraper that is preset and ready for making thousands of splices.

BROCHURE ON REQUEST

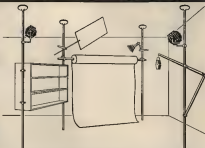
AVAILABLE NOW AT F&B

## WILLER Fluid Action TRIPOD HEAD

Complete control for smoother panning in both horizontal and vertical motions . . . F&B 260" horizontal movement. Fits F&B PRO-CINE TRIPOD.

ADAPTER PLATE \$15.00

PRICE \$112.50



A NEW WAY TO HOLD THINGS UP ANYWHERE . . .  
LIGHTS - PROPS - BACKGROUNDS - AWKES  
Without Nails or Screws - With

## POLECAT

POLECAT is a lightweight, telescoping column of 35, inch anodized aluminum with an expansion spring in the top. Adjust it once to your ceiling height with locking collar. Then just spring it in and out of place as you please. Rubber pads top and bottom protect ceilings and floors. POLECAT can't be bent and won't hold less than four times the weight of a silver dollar.



Adjust push up. It's done.

HOLDS 400 POUNDS. Makes a portable, mobile, lightweight for lights. Two POLECATS with cross piece and fitting can be used to hold a roll of background paper, props, flats, etc. Perfect for location filming.

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# ARRIFLEX

New 35 mm Model 2A  
With 180° Shutter

## A TRULY GREAT CAMERA

for TV, Newsreel  
and commercial  
films



For tough and trying assignments, ARRIFLEX 35 is in a class by itself. Reflex focusing through photographing lens while camera is operating—this is just one outstanding ARRIFLEX feature.

Equipped with bright, right-side-up image finder, 6½x magnification. Solves all parallax problems. 3 lens turret. Variable speed motor built into handle operates from lightweight battery. Tachometer registering from 0 to 50 frames per second. Compact, lightweight for either tripod or hand-held filming. Takes 200' or 400' magazine. Write for free folder.

Shipping now available.  
16-mm ARRIFLEX also available.

FRANK C. ZUCKER

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# WHAT'S NEW

... in equipment, accessories, service



### Car-top Platform

Carter Manufacturing Co., 1235 S. E. Division St., Portland 2, Oregon, announces a full-length car-top platform for photographers that provides ample support for two men and equipment. Sixteen patented CarPac rubber support cushions carry the weight, and will not mark or stain car finish.

All models are shipped factory-assembled for assurance of finest workmanship. Complete installation time—10 to 15 minutes. Ladder and cutwalk fold up for carrying in transit or may be left in place. Special stainless steel straps hold ladder to bumper.

Price with ladder and cutwalk as shown in photo, \$225.00.



### DuPont Film Re-packed

Packaging changes providing ready distinction between Type 930A and Type 931A 16mm motion picture films have been announced by DuPont. The box for Type 930A Rapid Reversal Pan, used mainly for daylight work, has a red background, whereas the container for Type 931A High Speed Rapid Reversal Pan, used mainly for night-time pictures, now has a predominantly black background. Chances of a cameraman

inadvertently using the wrong film is thereby lessened. The re-designed boxes are being used for 100-ft. and 200-ft. substandard-light-loading 16 mm rolls.



### New Cine Camera

Bell & Howell Co., Chicago, announces a new 16mm cine camera featuring the Sinaromatic lens, which is set by dialing a printed description of the outdoor light. Lens provides over 50% more picture area and greater depth of field than the standard 1" lenses.

### Custom Processors

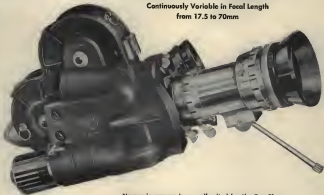
Metal Masters, 4544 64th St., San Diego, Calif., has stepped up its facilities for the manufacture of custom designed film processing machinery. Pictured below is equipment recently completed for Orlando Air Force Base. Outfit comprises two Metal Master basic B&W processors, which accommodates either 16mm or 35mm film at 50-ft. per minute. Descriptive literature is available.



# NEW ARRI PAN-CINOR 'ZOOM' LENS

## for the **ARRIFLEX 16.**

Continuously Variable in Focal Length  
from 17.5 to 70mm



No movie camera is so well suited for the Pan-Cinor  
Varifocal Lens as the ARRIFLEX 16.

By simply moving a lever, you can vary the focal length of this lens from wide angle to telephoto — and back — smoothly. You change the study while actually shooting, as you view the image through the Arri Pan-Cinor lens in the Motor Reflex viewing system of the Arriflex. No external finder is needed.

Other lenses need not be removed, because the diverging lens front of the Arriflex 16 permits two other lenses to be used without optical or physical interference.

It is easy to follow moving subjects and it saves expensive "dolly" shots as the camera can remain in one position and a dolly effect achieved by varying the focal length of the lens.

### SPECIFICATIONS

Varifocal Range	17.5mm to 70mm
Aperture Range	f2.4 to f22
Focusing Range	6 1/2 feet to infinity
Built-in Lens Hood/Filter Holder for Sunco VHS Accessories	

**\$399.<sup>75</sup>**

Note: The Arri Pan-Cinor is not interchangeable with the standard model, nor can the standard model be converted for use with the Arriflex.

**KLING PHOTO CORP.**

237 Fourth Avenue, New York 10, N.Y.  
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This word, in film processing, is a very important word indeed.

People tell you that one film processing job is as good as another, and what the heck, what's the measure of accuracy, anyway?

Well. To answer that one would take a very long time. Suffice it to say here that it's summed up in all the operations of a processing job, where even the smallest details are of great importance. It shows everywhere, and it positively shines when the film appears on the screen.

What we're talking about, of course, are the people and the operations at Precision Film Laboratories. Here attention to detail, sound, proven techniques are applied by skilled, expert technicians to assure you the accurate, exact processing your films deserve to justify your best production efforts.

Accuracy is a must for TV—for industrials—for education—for all movies.

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and hear

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In everything, there is one best . . . in film processing, it's Precision

**Burnett Guffey, ASC**

**the lens**

Bausch & Lomb Baltar ...  
the professional standard



**the result**

Academy Award, 1953, for black-and-white  
cinematography in the Columbia  
production, "From Here to  
Eternity"



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Academy of Motion Picture Arts and Sciences  
Resolves Here it has not yet decided to the Institute

**BAUSCH & LOMB**

1858 1913



# DEDICATED TO BETTER PERFORMANCE



## COLLAPSIBLE 3-WHEEL DOLLY

For motion picture and TV cameras. Sturdy cast aluminum. For standard or baby tripod. Additional baby tripod point holders to control spread of tripod legs. Adjustable spring cast. Extra wide rubber wheels. Swivel to down clamps and other features.

For studio or location. Folds into one compact unit. Can be used with professional or semi-professional tripods.



## SYNCHROMASTER SYNCHRONIZER

Our Exclusive Distributor  
*Neumade*

Key combination of 18mm and/or 35mm sprockets assembled to specification. Cast aluminum. Foot linear type, adjustable frame. Fast inner roller release. Contact rollers adjusted individually for positive film contact. Sprocket shaft slip lock. Footage counter, etc.



## PORTABLE MICROPHONE BOOM

For Studio or on Location. Lightweight — collapsible — for TV and motion picture production. Sturdy construction. Foam telescopes 7 to 17 ft. Rear handle for directional mike control. A remote control permits 360° rotation of the microphone. Operator can push the boom and operate microphone swivel simultaneously. Extension rods make it simple to operate microphone rotation from floor. Microphone cable hangs outside of boom, preventing cable from tangling with the rotating mechanism. Ball bearing camera, rigid foot locks, pneumatic drop check for lowering the boom, etc.

ate microphone swivel simultaneously. Extension rods make it simple to operate microphone rotation from floor. Microphone cable hangs outside of boom, preventing cable from tangling with the rotating mechanism. Ball bearing camera, rigid foot locks, pneumatic drop check for lowering the boom, etc.

## 'HYDROLLY'

TV OR  
CAMERA DOLLY

The advanced dolly for instant movability — streamlined, lightweight, exceptionally sturdy. Nothing to get out of order. Many new advantages for easy operation. Hydraulic lift type for fast upward and downward motion of TV and motion picture cameras.



Swivel seat. Adjustable leveling head. Seat for assistant. In-line wheels for back use. Steering wheel, rigid foot locks. Hand pump or combination hand and motor pump. Easily transported in a station wagon. Fits through a 28" door.

## RENTALS

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LENS COATING

"T" STOP CALIBRATION

DESIGNING AND MANUFACTURING

lens mounts & camera rigging for 16mm, 35mm, TV cameras.

## BAUSCH & LOMB "BALTAR" LENSES and others

for motion picture, TV cameras, 16mm to 40" focal length.

COMPLETE LINE of 16mm, 35mm, cameras, dollies, synchronizers, animation — on-site — testing rooms and time lapse equipment.

SELL & HOWELL, Standard, Egan, F. Jones, Mitchell, Standard, Rite-way, INC., NC, 15010.

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ColorTran Groverlite

## SENIOR & JUNIOR KITS

"A STUDIO IN A SUITCASE"

ColorTran replaces heavy and expensive equipment... gives you illumination up to 5000w. from an ordinary 20 amp. house current. Equipped with barebones, delivery slots for films, accessories and other accessories. Ideal for studio or location shots.



## VARIABLE- SPEED MOTOR with TACHOMETER

for Cine Special or Maurer Cameras

115 V. Universal Motor — AC-DC  
Separate Run for Cine Special  
Variable Speed 5-44 frames  
Adaptor for Maurer Camera.

INTERCHANGEABLE MOTORS: 12 volt DC Variable Speed 5-44 frames.  
115 Volt AC 60 Cycles, Synchronous Motor, Single Phase.

ANIMATION MOTORS: Cine Special, Maurer, Mitchell, S & H Motors, for Bolex and Foma Cameras.



hitting the trail August 1...

THE 4TH ANNUAL NATIONWIDE

# MAGNASYNC SOUND SAFARI



Watch for our intrepid narrator. He's putting the full show on the road so that you can see how Magnasync provides ready answers for every recording problem...and every budget. The safari lasts two months and covers the country. It'll be your way soon.

INTERNATIONAL LEADERS IN THE DESIGN AND MANUFACTURE OF QUALITY MAGNETIC FILM RECORDING DEVICES



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**MAGNASYNC**  
EST. 1954

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SOUND SAFARI

## DEALERS

NEW YORK—Camera Sculpture Co., 3608 Broadway,  
New York 19; Judd's 8-1470 Cable Address CINEQUIP  
CHICAGO—Zenth Camera Service, Inc., 3352 Foster  
Ave., Chicago 25, Ill. (Rdng. 8-2304)

SAN FRANCISCO—Brooks Camera Co., 48 Kearney St.,  
San Francisco, Calif. (Rdng. 2-7348)  
CANADA—Alex L. Clark Ltd., 3245 Bloor St. Toronto  
18, Ontario (Rdng. 1-3303)

## SMOOTHER FILMS

with the . . .

### MILLER "FLUID-ACTION" TRIPOD HEAD

the world's finest

- Fluid pan control
- Fluid tilt control
- Quick camera lock
- Adjustable handle with R, H and L/H positions

### THE ONLY MAJOR CHANGE IN A TRIPOD HEAD IN 25 YEARS!

The Miller 'Fluid Action' Head is designed for use in conjunction with all types of cine cameras and control equipment where smooth, even panning and tilting movement is essential. This movement operates on a semi-hydraulic principle which is patented throughout the world and should not be confused with any friction type movement.

The Miller 'Fluid Action' Head is suitable for many applications and when used in conjunction with cine cameras, permits the operator to pan and tilt the camera without that annoying 'shake and judder' so common with friction type heads, at a modest outlay to the professional. Cost, but at a fraction of the cost.



Note: A Miller office has recently been established in Hollywood for the convenience of our customers. Miller 'Fluid-Action' Heads will be in stock within the next 60 days, however, because of international demands for Miller Heads, the supply will be limited. Early orders will receive preferred delivery.



Dealer inquiries invited

### MILLER PRECISION EQUIPMENT, INC.

7305 Melrose Ave.

Hollywood 46, California

ANOTHER "VISCOSITY DEAD" PRODUCT BY MILLER

## The Original BARDWELL-McALISTER Lighting Equipment

ACCESSORIES  
GRIP EQUIPMENT

HANGERS  
CABLES, ETC.

Sold By

### SCHOEN & CROWE

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Send For Our Catalog

## INDUSTRY NEWS

(Continued from Page 402)

by handling processing through their own selected local laboratories. Others may still have processing done by Ansco at Binghamton, New York.

Ansco laboratories will process the films for either of two standard speeds: Exposure Index 32 or Exposure Index 125. The higher speed is expected to be popular with cinematographers who are required to make color movies of news and sports events under difficult lighting conditions. The higher speed will also be of great value to industrial film makers who must often make exposures on location where lighting is poor or where the extreme speed of a particular operation requires higher than normal frame speeds.

Ansochrome 16mm film is available in both daylight and tungsten (3400K) types at photo supply stores in 100 ft. daylight-loading spools for standard motion picture cameras and with special perforations for use in Ektax and other high-speed cameras. Retail price of film is \$7.80 per 100-ft roll.

The additional charge for processing by Ansco's laboratories is .0990 cents per foot, with a minimum processing charge of \$4.90 per order.

• • •

Magnasyn's annual "Sound Safari" leaves North Hollywood on August 1st with Sales Manager Howard Anchester at the helm.

Safari, initiated by Magnasyn president D. J. White three years ago, has become a regular yearly presentation with the latest company sound equipment carried by air-conditioned station wagon throughout the country.

Purpose is to let film producers and others see and hear the company's



latest Magnasyn equipment in their own studios, under actual operating conditions. Feature attraction this year is "sneak preview" of the company's new "Mark X" recorder, which will be formally announced in the September issue of *American Cinematographer*.





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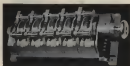
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Winton Hoch, A.S.C.

# Sub-zero Camera Operation

A pre-production test to insure acceptable camera operation in filming scenes for "The Searchers" at below-zero temperatures.

By WINTON HOCH, A.S.C.  
Director of Photography, C. V. Whitney Pictures, Inc.

C. V. WHITNEY PICTURES wanted honesty and realism in its productions. The company did not intend to look around with any artificial atmosphere if it could be avoided. "The Searchers" called for scenes with snow and ice, so we looked for the coldest spot we could find in the United States that would be sure to have snow and still be reasonably accessible. The spot finally chosen was Gunnison, Colorado, and the pre-production survey party encountered temperatures lower than thirty degrees below zero!

The picture was to be photographed in VistaVision using the newly converted Technicolor cameras. Cold weather tests were essential. We needed to know at what temperatures camera heaters were needed; how and where to apply the heat — and how much. In addition we needed to check for any possible focus changes that might occur, check the battery performance with the given equipment under these conditions, ascertain the film gamma loss and determine any desirable exposure corrections at low temperatures. The extent of these latter factors could be estimated, of course, but an opportunity to check them first-hand is always welcome.

The Technicolor camera department was most co-operative, and anticipating the amount of heating needed, installed heating elements in the base of the camera, in the camera plate adapter and in a special heating blanket.

Non-technical members of this in-

dustry may find it interesting to note the great amount of careful, detailed work involved in this comparatively simple test. The resultant H & D curves and the log data are submitted in Figs. 2, 3, and 4.

A careful search for an available and suitable "cold room" was rewarded with the discovery of a most complete test facility in Westwood, near Hollywood, for the thorough testing of aircraft equipment at all temperatures, altitudes and humidities.

A test procedure was drawn up to facilitate the testing progress, equipment and warm clothing were assembled, and we decorated on the test facility.

Camera personnel also present included Gene Polito, George Dye, and Elmer Fabian, Representing Techni-

color or were Fred Detzen, "Jake" Jacobs, Frank Schermer and "I" Isen.

The camera was first set up in the controlled chamber (Fig. 1) at the existing temperature (approx. 30° F.) and the several copper-constantine thermocouples were installed as follows:

The motor thermocouple was fastened to the top of the rear endbell.

The lens thermocouple was fastened to the face of the camera box near the lens.

The battery thermocouples were put inside the battery lids.

The camera thermocouple was fastened to the rack over support pedestal at approximately the center of the camera box inside the camera.

The chamber thermocouple was hanging in the air of the cold chamber near the camera.

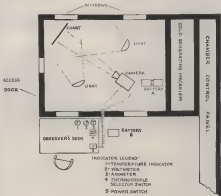
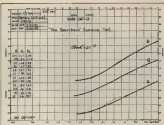
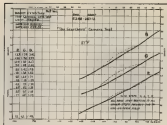


FIG. 1—Diagram of cold room where camera tests described by author were carried out. Camera performance was tested under temperatures ranging down to 44° below zero.



H&D 2 and 3—Charts show H&D curves for negatives exposed in cold chambers at 81° F and -22° F during camera tests made

prior to production of "The Searchlight." Above figures indicate approximate temperatures of the negatives at time of exposure

Two camera batteries were connected in parallel and an extension cord carried to a selector switch outside the cold chamber so that an outside battery might be used if the cold ones lost too much power.

With all circuits checked, the crew proceeded to shoot a focus test and an H & D test at normal room temperature (81° F). Power drawn was 181 Watts. The camera was then re-threaded with a fresh magazine, the first magazine being left in the cold chamber. Another R & D focus test was then shot. After an interval for lunch the rethreading mechanism was activated and the camera operated periodically to determine at what point and temperatures the camera operation would be impractical. The effects of the thermal inertia of the camera equipment is a factor that will have to be estimated — most certainly not ignored.

At 2:20 PM the heating blankets and inside camera heaters were turned on and temperature in the chamber reduced to -15° in 15 minutes. The effectiveness of the base heaters and the blanket is obvious from the test data. At 2:37 the crew members were removed to "recover" and double check their warm clothing. At 3:00 PM the crew re-entered to shoot the "cold" focus and H & D tests. Up to this time it was obvious that the heating facilities were more than adequate to protect the camera for satisfactory operation at temperatures in the vicinity of -15° to -19°.

The heating blanket was removed to

(Continued on Page 463)

### LOG OF COLD CHAMBER TEST PROCEDURE

Run Time	Chamber	Camera	Motor	Temp	Expt	Expt	Expt	Expt	Expt	Comments
hr					1	2	3	4	5	
1.2	12.10	—	—	81°	42°	40°	76°	43	4.0	Start H&D
2.3	12.30	—	—	81°	42°	40°	76°	43	4.0	Start H&D. Camera re-threaded with fresh magazine; 1st test left in chamber
3.3	12.34	81°	—	81°	42°	40°	76°	43	4.2	Start H&D
1.40	—	—	—	—	—	—	—	—	—	Power turned on
1.44	30°	80°	72°	72°	72°	40°	—	—	—	
1.48	4°	72°	32°	32°	32°	4°	—	—	—	
1.50	—	—	—	—	—	—	—	—	—	
1.52	-54°	72°	40°	30°	76°	10°	—	—	—	Start run
1.58	—	—	—	—	—	—	—	—	—	
2.00	—	—	—	—	—	—	—	—	—	Readiness unit and chamber opened, blank at end; base heater connected, chamber closed
2.08	40°	81°	80°	80°	40°	41°	—	—	—	
2.10	-13°	72°	64°	58°	40°	3°	—	—	—	Almost all heating units out
2.12	—	—	—	—	—	—	—	—	—	
2.14	-54°	82°	81°	58.5°	42°	-50°	—	—	—	
2.16	—	—	—	—	—	—	—	—	—	
2.22	—	—	—	—	—	—	—	—	—	Power stopped, crew to arrive from standby; power started
2.24	-18°	81°	71.5°	60°	58°	-1°	—	—	—	
2.26	-18°	81.5°	72°	60°	58°	-12°	—	—	—	
2.28	—	—	—	—	—	—	—	—	—	Chamber opened, crew re-activated; power re-started
2.3	3.08	-19°	81°	70°	60°	46.5°	-15°	42.3	4.3	Start H&D from test
3.10	-20°	79°	62°	-13.5°	58°	-15°	—	—	—	
3.12	—	—	—	—	—	—	—	—	—	Camera re-threaded with 1st magazine. Film was loaded. Heating parts were not replaced. 1st chamber of blanket is inactive; H&D and H&D tests
3.1	3.20	-20°	70.5°	58°	-13°	56.5°	-14°	42.5	4.4	H&D test
3.1	3.30	-21°	67°	51.5°	-14°	50.5°	-15°	42	4.7	Motor coast; blanket in
3.2	3.38	—	—	—	—	—	—	41.5	4.6	Readiness unit. Crew disconnected. Heating parts complete but film of 1st chamber replaced; heating parts replaced
3.40	—	—	—	—	—	—	—	—	—	Crew members were brought out of chamber and chamber re-closed. Camera was set for -22° F
3.42	-24°	64°	40.5°	23.5°	31°	-23°	—	—	—	Chamber contents set for -32° F
3.44	—	—	—	—	—	—	—	—	—	
4.04	-40°	44°	47.5°	21.5°	28°	-22°	—	—	—	
4.12	-40°	44.5°	47°	19.5°	19.5°	-23°	42	4.6	—	Blank exposed and crew re-activated. Glass film removed; study chamber up; was closed
4.14	-30°	48.5°	51°	31°	34.5°	-10°	—	—	—	
4.22	-44°	51.5°	51.5°	23.5°	14°	-40°	42	4.9	—	Start H&D from test; time 30.5

PG. 6—Log of four-hour cold chamber test in which camera, motor and heater performance were observed under varying temperatures.



**ARROW POINTS** is gadget attached to motor of the Arriflex-16 which makes possible the manual opening and closing of shutter for single-frame animation exposures.



**THREE-TO-ONE** reduction gears. Click stop indicates one-half revolution of device. One complete revolution opens and closes shutter for a single frame exposure.

## Animation With The Arriflex-16

College film makers develop simple device for producing single-frame animation with the 16mm Arriflex camera.

By IRA LATOUR

*Instructor, San Francisco State College*

WHEN WE STARTED production on a film dealing with the new philosophy of lettering developed by Professor Seymour Locke it was decided that to illustrate properly his ideas it would be necessary to run many sequences in animation. We had a 16mm Arriflex camera, but it was with some disappointment we realized that for

animation photography this equipment required an animation motor. At that time the motor was unavailable in this country, and even now it represents a sizeable investment for the small film maker.

Mr. William Quinck of the Photography Department of San Francisco School of Fine Arts suggested the very simple idea of using a Time-o-lite to obtain exposures. For each exposure the houselights would be turned off, the shutter opened by the shutter control knob at the end of the stand and Arriflex eight-volt motor, and the photofloods turned on for the required exposure time by means of the Time-o-lite. After exposure the shutter would be closed and houselights turned back on for the next change of cell or drawing.

For the complete cycle of one frame it was necessary to turn the shutter knob three complete turns, or in other words, to open the shutter the knob had to be moved one and a half turns, to close it, an additional turn and a half. This was not only laborious but tended to produce human error. Obviously some device was needed to reduce the number of revolutions and to mark them on a simple dial to reduce the danger of confusion.

*(Continued on Page 432)*



TO PRODUCE an animated film of simple pointing Arriflex 16mm camera fitted with gadget pictured above was used by students of San Francisco State College. New aerial adds another stroke of color to pointing which will be recorded on a single frame exposure.

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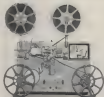
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ONE OF THE NINE cameras that photograph the "Do You Trust Your Wife?" TV show in Hollywood is shown here recording Edgar Bergen and his popular dummy-character Ella Klinger in dressing during a recent show, as director Jim Morgan (right) and his assistant Harold Pugh, standing beside camera, look on. Meanwhile, Director of Photography Don Clark (lower right) keeps a sharp eye on the lighting.

## PUTTING THE EDGAR BERGEN TELEVISION SHOW ON FILM

Cinematographer Don Clark uses battery of nine Mitchell cameras to photograph "Do You Trust Your Wife?" in a continuous run.

By ARTHUR ROWAN

NINE MITCHELL 35MM cameras are used to photograph Edgar Bergen's weekly television show, "Do You Trust Your Wife?". The nine cameras and the lenses supplied with them are rarely the same as used the previous week and invariably it is a different camera crew

that is supplied by the Union for the one-night-a-week chore of recording on film one of television's top hit shows. Obviously, this poses problems for Don B. Clark, A.S.C., the show's Director of Photography.

Technically, the thing Clark maces

most is lenses calibrated in T-Stops. Clark, who at one time headed the Camera Department at 20th Century Fox, is an exponent of the T-Stop system. With uniformly calibrated lenses on all the cameras, he says, photographic quality of the show would be greatly improved. This typifies the conscientious effort with which Clark has tackled the photography of this show since its inception. He photographed the pilot and has directed the photography of 37 shows to date. To the eye of the discerning technician, each show reveals consistent improvement both in the photography and lighting.

"Do You Trust Your Wife?" which is produced by Don Fedderson in association with Edgar Bergen and directed by Jim Morgan, is a novel quiz program in which married couples are the contestants and the husbands make a choice of "trusting their wives" or trusting themselves to give the right answers to questions propounded by quizmaster Edgar Bergen. Bergen's internationally famous association, Charlie Mc Carthy, Mortimer Snerd and Ella Klinger, also make brief appearances. Readers who are regular followers of the show will recognize the typical program scene pictured in photo on this page.

In the early days of the show, the set was spread out too wide, which posed problems in the lighting. Clark has convinced the producer that by compressing the set—keeping Bergen and his contestants closer together at all times—photography can be simplified with improved quality resulting on the screen. Today, most of the show's action is staged within an area of approximately 12 feet, although the varied camera angles and expert editing give the illusion of greater space. The setup is pictured in the photo at top of page and shows one of the cameras photographing Bergen and Ella in closeup as Bergen interviews two contestants.

Although "Do You Trust Your Wife?" is a CBS program, it is photographed on Tuesday nights on Stage A at NBC's studios in Hollywood where each week on a different night the *Groucho Marx Show* is filmed. Actually, the filming format of the *Bergen* show is quite similar, except that eight cameras are used on the *Marx* show compared to nine used on *Bergen's*. The show follows the same "live audience" format as the *Marx* show, which means that it proceeds continuously before a studio audience with the cameras and sound apparatus recording continuously all that is said and done. Filming consumes the better part of an hour, during which time between 20,000 and 30,000 feet of negative is exposed. Later this is edited down to the standard footage for a half-hour show.

Eight of the nine cameras are di-



persed in pairs at strategic points around the set, the pairs designated for reference as A, B, C, and D. The ninth camera works alone. It is set up behind the set and is focused on the twin blackboards to which Bergen sends his contestants to work out answers to quiz questions. It is started and stopped by remote control by Clark from a position directly in front of the set. Lens used on this camera is a 25mm.

The pair of cameras in the A group are to the left of the set and work with 100mm lenses. They are focused on Edgar Bergen, the dummy (when one is used), and announcer Bob Leonard whenever he comes to the microphone.

The B group cameras are directly in front of the set and pick up the whole set in a master shot—including Bergen, the contestants and the sponsor's signs hanging just above in the background. The working lenses on these cameras are 50mm.

The C and D group cameras are at the right of the set. Their arrangement is shown in the photo on the cover and also in the illustration on page 434.

The first two cameras work with 75mm lenses and are focused on the contestants. The next two cameras are the D group; with 150mm lenses, they record the contestants in closeup.

Unlike the conventional feature motion picture, the Edgar Bergen show is recorded continuously as it progresses. There is not the usual interruption for change of camera setups to make closeups, reverse angle shots, etc. Four cameras are turning continuously, recording the action from four different angles and in different aspect dimensions (closeups, key shots, etc.).

As the show starts, picture and sound are synced with slate and clapper on a recording tape which runs continuously throughout the filming of the show. Thereafter, only the picture film is synchronized with a loop light in each camera, as follows: When the No. 1 camera in each position (A, B, C, and D) is running out of film, the No. 2 camera is started, at which time the film in both cameras are sync-marked or "blooped" simultaneously. The No. 1 camera is reloaded and made ready to

resume operation when the film in camera No. 2 nears the end of the spool, and so on continuously throughout the show. Each pair of cameras in the A, B, C and D positions (see diagram) operate independently for protection in case mechanical trouble should develop in any one camera.

In the early days of the show when the set was spread out more, it required 700 amps of light to photograph it. Today, with the action compressed within a smaller area, only 400 amps are required. Two 150 FC keylight sources are used. One is directed on Edgar Bergen and the other—coming from a different angle—is directed on the contestants. Carefully adjusted barn doors on the lamps confine the light beams on the respective subjects so that one source does not conflict with the other.

The format of the show plus the fact that it takes place before a studio audience makes it impossible to use lighting equipment on the floor. For this reason all set lighting units are suspended from the ceiling. This means

(Continued on Page 436)



WHILE DIRECTOR of Photography Don Clark (seated) checks the light with a meter, operators stand by four of the nine cameras that record the Edgar Bergen show, "Do You Trust Your Wife?"

The show is photographed continuously, with four cameras recording and four standing by to take over when film in first four cameras runs low.



FIG. 1—The unit in "lid" position. Note that lid of compartment is open which permits daylight to reach growing plant—the subject of the filming. Mercury switch on lid controls the photoflash.

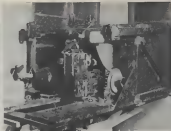


FIG. 2—Unit in operation making an exposure. Here lid is closed to exclude all daylight, exposure light being furnished by photoflash within compartment. Rotating timer disc is at right of camera.

## A Portable, Automatic Interval Timer

Australian filmers build unique equipment which houses camera, subject and lights and actuates exposures at intervals from 2½ minutes to 1 hour.

By PAUL F. RUCKERT

*Producer, Insectible Studios, Brisbane, Australia*

**N**ECESSEITY IS THE mother of invention, so the saying goes, so when our studio was faced with the need for equipment to produce time-lapse photography of nature subjects, we had to build our own because nothing of this sort was available on the local market. And because cost also must be considered by the small studio such as ours, we were delighted to find that our home-made outfit cost us only \$45.00. We have exposed many hundreds of feet of 16mm Kodachrome with the unit, which has never missed a frame of film.

It is not our intention here to dwell on the fundamentals of time-lapse cinematography. This type of photography should only be undertaken by the skilled worker—the professional or advanced amateur who knows the basic principles of time-lapse. The beginner will find text books available explaining the fundamentals.

Believing that other film producers may find interest in our time-lapse equipment, we shall give details here of its construction and describe its operation.

It will be noted that we have kept electrical switches and contacts to a minimum, because simplicity is the most important factor—no small consideration when we realize that a device of this kind must function without error in order to produce smooth, uninterrupted action in interval exposures.

Most nature subjects such as the growth of plants and the bursting of flower buds into bloom, require at least two days of continuous interval photography to record. With some plant life cycles, it is necessary to carry out the time-lapse photography over a period of two to three weeks. Therefore, to obtain uniform exposures in both day and night periods, the photographic illumination must be the same. This means using artificial light entirely for photography and excluding all daylight during the daytime exposures, but at the same time providing for daylight to reach the growing plants between exposure intervals. A plant cannot grow in darkness; it requires natural daylight for this. This explains the rather unique equipment

which we have designed. In use it is placed near a window which will allow the morning sun to reach the growing subject during the in-between-exposure intervals.

We started by constructing, from 1-inch pine boards, a box 2 feet square by 2 feet high that would house our subject and the two 500-watt photostraps required for photography. The box was mounted on a wooden base and fitted with a sliding cradle for the camera that allowed for varying the camera distance to subject from 4 feet down to 6 inches. We decided on a hinged lid for the box that would open close automatically each time an exposure was to be made. The complete unit can easily be moved and put into operation anywhere that electric current is available.

The lid of the box is balanced with weights; a minimum of power is therefore needed to close the lid. We use an ex-army ¼ H.P. motor with 100-to-1 reduction gearbox. To this we have added another 3-to-1 reduction gear giving a very slow moving spindle onto which



FIG. 3.—Clear view looking toward subject of timing. Lens may be seen the counting motor (left) and the interval timer disc at right. Concrete used is a White R-16 mounted on sliding base.

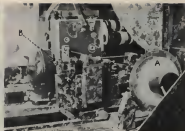


FIG. 4.—Timer disc with interval studs is shown at A. Camera exposure release is shown at B, which is connected to cable C that extends to relay switch controlling the exposure mechanism.

a disc is mounted. To this disc a series of arms are attached to drive the lid of box open and shut. (See Fig. 5).

Incidentally the standard one-inch Iffern camera lens will only focus down to 18 inches. We found the easiest way to focus closer is to remove the lens from camera and re-screw in with a 1-16th-inch thick washer behind the lens. This allows focusing as close as 6 inches or so. If the reader tries this, don't forget to remove the washer when the camera is needed for regular work!

The vital part of a time-lapse unit is the timer which gives a varying interval range. We have found intervals of  $2\frac{1}{2}$  to 10 minutes most useful for flowers bursting into bloom, but intervals up to one hour are required for some plant growth.

Our timer is clearly shown in Fig. 4. Purchase a medium-size electric clock which must be self starting (in case of power failure). Remove the hands and fit a very light aluminum disc in place of the minute hand. On the outer edge of the disc drill 24 evenly spaced holes slightly smaller than  $\frac{1}{16}$  inch. Force  $\frac{1}{16}$  inch studs into the holes by screwing; these will make their own thread in the soft aluminum. By unlatching all the studs, exposure intervals will be  $2\frac{1}{2}$  minutes; by removing every alternate stud you have intervals of 5 minutes, and so on down to 2 studs for half-hour intervals, or one stud for one-hour intervals.

For switching lights on and off, and starting and stopping motor we found 10-amp. mercury switches the most re-

liable. A mercury switch is mounted on top of the lid for switching on the lights (See Figs. 1 and 2). When the lid fits the mercury runs down its glass tube making contact between two studs wired to the lights.

In Fig. 5 may be seen a small arm at the bottom of the timer. This is the trip that starts the motor going. As the disc rotates a stud catches the tip of this finely balanced arm, which eventually drops, making a contact between points. These points should be of such metal as will not burn or corrode. We used the points from a door buzzer (points from a motor car distributor will do, too). Use another door buzzer to drop the mercury switch that starts the motor. The end of the mercury switch is finely balanced on

(Continued on Page 444)

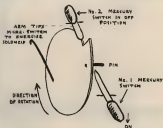


FIG. 5.—Diagram of driving disc showing method of control with the mercury switches that control camera action and lights.



FIG. 6.—Diagram showing how driving disc actuates the hinged lid of compartment to open and close camera for single-frame exposure.

# The Depth Of Field Of Camera Lenses

With special reference to its importance in wide-screen cinematography.

**B**Y THE VERY NATURE of optical imagery, a lens is capable of forming a sharp image of only a single plane of the object space. In practice, however, such factors as the aberrations of the lens or the graininess of the film establish a limit for the useful sharpness, so there is a certain "depth of field" that may be said to be in sharp focus. The depth of field is sometimes called the depth of focus, but the latter term has a different significance in optical terminology.

The lack of depth of field in a lens is familiar to anyone who has ever attempted to make photographs with lenses of high relative aperture, but there is nevertheless a great deal of misinformation on this subject. This seems to be a consequence of the custom of judging the depth of field from the results of photographic tests, which are seldom conducted in such a manner as to yield results that are really significant. Even if they are, a lens of poor quality has apparently a greater depth of field than a well-corrected one, and the experimental method of determining the depth of field may therefore be very misleading. It is possible to treat this subject theoretically and, as it happens, the rigorous treatment is less complicated than the approximation that is sometimes made.

This subject is particularly timely because of the current industry trend toward wide film. The effect on the depth of field when photographing a subject on a wider film, is not immediately apparent. Nor is it apparent that the depth of field may be altered by making a large negative and printing by optical reduction on standard film. The purpose of this article is to consider these questions in some detail, but before this can be done, a certain amount of optical theory must be developed.

The depth of field of any lens or optical system is given approximately by the two expressions

$$d_f = \frac{r^2 P}{mP - r} \quad (1)$$

and

$$d_n = \frac{r^2 P}{mP + r} \quad (2)$$

where  $d_f$  represents the depth of field on the far side of the object-plane in sharp focus and  $d_n$  represents the depth of field on the near side. The total

depth of field on the near side. The total depth of field then is

$$d = d_f + d_n$$

In the above equations,  $r$  represents the radius of the permissible circle of confusion,  $P$  is the distance from the entrance-pupil of the lens to the object-plane on which the camera is focused,  $m$  is the magnification of an object in this plane on the film, and  $p$  is the radius of the entrance-pupil of the lens.

An erroneous estimate of the depth of field of a lens is sometimes made on the basis of the so-called "hyperfocal distance." This is the minimum distance of an object-plane on which the lens can be focused and still have two objects at infinity appear sharp. In other words, for this condition, the far depth  $d_f$  is infinite. From equation (1), it follows that this condition will obtain when

$$mP - r = 0 \quad (3)$$

Now, in the Newtonian form of the lens equation,

$$\frac{f}{x} = \frac{f}{x} + \frac{f}{x}$$

where  $x$  is the distance of the object-plane in sharp focus from the first focal point of the lens. On substituting for  $m$  in equation (3), we have

$$\frac{f}{x} = \frac{f}{x} + \frac{f}{x} \quad (4)$$

where  $x$  is the hyperfocal distance measured from the first focal point of the lens. Equation (4) can be written in terms of the  $f/\#$  number of the lens, since this quantity is the ratio of the focal length to the diameter of the entrance-pupil. On substituting, we have

$$\frac{f}{x} = \frac{f}{x} + \frac{f}{x} \quad (5)$$

When equation (3) is satisfied, equation (2) shows that the near depth

$$d_n = \frac{f}{x} \quad (6)$$

Hence, when a lens is focused on the hyperfocal distance given by equation (5), all objects are in sharp focus from infinity to a point halfway between the object-plane in sharp focus and the entrance-pupil of the lens.

Now, a short hyperfocal distance indicates a great depth of field when the camera is focused on the hyperfocal distance. It is sometimes concluded from equation (5), therefore, that the depth of field of a lens varies inversely as the  $f/\#$  number and inversely as the

(Continued on Page 428)

DEPTH OF FOCUS  
35mm-111 inch 435mm-16mm CORONA

Columns: F2, F2.8, F3.5, F4, F4.5

Rows: Various camera models and film formats.

Calculated at 1:100 with Circle of Confusion

DEPTH OF FOCUS charts are available for most of the lenses currently in use in 35mm and 16mm cinematography. Reproduced above is a page from *American Cinematographer Handbook*, edited by Jackson J. Bass, ABC. Here the term "Depth of Focus" is used instead of "Depth of Field," due to the more general use of the former term by studio technicians.



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ACTUAL CUTTING is done when all rolls of film are lined up in the gang synchronizer, as shown above. Splicing can be done immediately or scenes can be cut a little long and taped to the preceding scene for splicing later.

shooting to speak of being required.

How can the editing, too, be handled in the simplest way?

By and large, the method of shooting suggests the technique of cutting. All cameras register the actual closing of the diaphragm in order to attain synchronization of all the rolls of film running simultaneously. Assuming that there are no other problems (there usually are and they will be considered below) we will have, let us say, three synchronously-exposed negatives and a sound track to work with.

If time permits, all the "takes" should be viewed as separate interlocks with the track. If not, at least the "long shot" roll should be so viewed in projection on the screen. The nature of the commentary and other pertinent factors, as well as editing principles themselves, will determine at which points it is desirable to cut from the "long shot" roll to one of the other rolls and back again. Some pertinent points might well be: 1) Was the second or third camera actually covering the desired object? 2) Is the action obscured by the position of the demonstrator, in the new angle? 3) Is the photographic quality of the alternate shot acceptable?, etc.

A refined type of cutting can be achieved with the use of a 2- or 3-gang picture-head Moviola. However, an ade-

## Editing Technique For TV Films

A simplified system of editing television films that are photographed with two or more cameras running simultaneously

By HYMAN R. COHEN

PHILIP TANNURA's ARTICLE in the May 1954 issue of *American Cinematographer* introduced a system of low-cost lighting and shooting of TV films. There are some very logical outcomes of this method, as the editing department, which complement very nicely the purposes and the techniques which he expounded — and which are the subject of this article.

Generally speaking, the editing technique to be described is more readily adapted to somewhat simpler films of the expository or demonstration type, which can be shot on a single set with two or three cameras running simultaneously. One camera usually covers the action in "long shot," while the other

camera provides "closeup," "variant angle" or "alternate object" shots. This technique is especially suitable for producing, at low cost, a film which has the effect of being "live" and spontaneous.

The *Dinne Lucas Show*, produced by the Arthur Modell Agency and directed by Mort Zimmerman at the Fleischer Smith Studios in New York City is a case in point. Miss Lucas performs her inimitable demonstrations of expert cookery while giving a lively contemporaneous commentary as the several cameras record the action, each from its own carefully selected angle and chosen field. The recorded action constitutes the body of the show, with no extra

quite job can be done by viewing the "long shot" roll and marking the frames where the cuts to the other rolls will be made. The actual cutting is done when all rolls are lined up in the synchronizer. In order to make the eventual problem of matching negative to work print as simple as possible (especially if there are no key numbers on the print, as is true of a 16mm reduction print) the following technique is recommended:

1. All cuts are made on the frame line in the spher so that no frames are lost.

2. Every time a length of film is lifted from the "long shot" roll (g1 roll), it is replaced by an equal length from

either of the other rolls, and the replaced scene or cut is taped in place in exact synchronization in the appropriate roll (#1 or #3) in such a way that it will go through the synchronizer readily and in synchronization with the other rolls.

3. Thus, our #1 roll will really become the work print and the other two rolls will have taped-in sections with all frames in synchronization. (Very important if any changes are to be made later.)

4. When the negative is to be matched to the work print, on which incidentally, we have retained the full head train containing the closed clapstick frame and have merely marked the "first frame of picture," all negative rolls are lined up in the synchronizer at the closed clapstick mark and the work is rolled down to the first frame. This frame is then scribed (on the roll which will carry the first scene). This first scene is applied to the prepared leader. The work is rolled down and whenever a splice occurs in the work print, the synchronous frame in the negative roll which matches the scene coming up in the work print is scribed. The splicing can be done immediately or the scenes can be cut a little long and taped to the preceding scene for splicing later. A lifted length of film is always switched with corresponding film taken from the roll that replaces it, so that each roll keeps the proper relationship of all scenes or cuts, as was done with the work print. Naturally, care must be taken to keep all subsequent frames in synchronization. Thus we will have one roll matched to the work print and the other two rolls will, in effect, be trims.

By way of recapitulation, let us see how this system differs from and, for certain purposes, is superior to the usual method of shooting with one camera and editing in the usual way. In the first place, the action is shot continuously in all cameras so that all cuts can be made "on action" and in perfect synchronization by the simple methods outlined above. Secondly, this method eliminates the necessity of breaking down shots, rearranging in sequential order, etc. Thirdly, matching of negative to work print is simplified, as the two

have to be lined up only once. This is a great time and energy saver in cases where there are no matching key numbers, as when we work with 35mm negative and 16mm reduction work prints. Inserts and options are handled in the usual way.

Above we have developed a general, simplified "theory" of the editing technique employed with the 2- or 3-camera shooting technique. However, it must be admitted that every technique involves its own peculiar problems and invites its own complications. Hence the following precautions:

1. Since a complete show will generally run longer than the capacity of the cameras' magazines, it will have to be filmed in two or three sections. Care-

ful planning of accurately directed "bridges" from one section to the next must be borne in mind and these must be recorded on film, with appropriate overlap of action.

2. A fairly accurate conception of the length of time involved in each section of the show must be kept in mind by the director and adjusted to the footage available in the camera.

3. All camera operations must be coordinated, either in advance by a "dry run" or during the shooting by appropriate means, as to the shots which are to be covered by each camera. This may mean that while the "longshot" camera may follow the "actor" about in any movement, the other cameras may stay

(Continued on Page 495)



A SINKED type of editing can be achieved using a 2- or 3-picture-head Synchronizer.

#### TAIL TRIM



#### W.P. SCENE



#### W.P. SCENE



#### HEAD TRIM



NO "dead" cuts are made in a splicer without testing frames. The head and tail wires are kept at all times in a barrel and are matched to match the adjacent frame in the work print.



BALLOONTIED dolly provides smooth novel of camera on board track for location shot for MGM's "The Last Hunt."



WHEN THE director wanted the camera to follow a transfer on unweathened for "Storm Fear," it was mounted on two balloons lashed together.

## MOVING CAMERA SHOTS

Many and varied are the conveyances used by studio cinematographers in making dramatic dolly and trucking shots.

By FREDERICK FOSTER

WHEN THE ZOOM LENS was first introduced for motion pictures, it was freely predicted that it would largely supplant the dolly, camera car and crane as a means of making those moving camera shots that bring the action progressively closer on the screen. Despite these predictions, the moving camera shot and the mobile carriers used in their execution continue popular with all feature film producers.

Of course, the photographic effect that can be produced with a zoom lens does not equal in scope that which can be achieved by a camera mounted on a dolly or other mobile camera carrier, which is probably the reason the latter technique continues popular.

Besides the conventional dollies, cranes, and motorized camera carriers, many other ingenious devices have been utilized to effect a "moving camera" shot. The pictures on these pages show

some of the methods that have been used by various Hollywood studios in photographing some highly dramatic scenes for recent productions.

Moving camera shots are invariably more specifically defined as "dolly shot," or "trucking shot," "follow shot," etc., and are understood to indicate that the camera follows a given action or player in order to keep them the same dimension on the screen throughout the action, or to move the camera progressively away from or toward a subject or action for sharp dramatic effect—an effect similar to that achieved by a zoom lens.

Such shots are the result of very careful planning at the time the script is prepared, and are specified in a script as the best means for achieving pictorial or dramatic emphasis with the camera. The director of photography and his camera crew execute such

shots according to the script directions, unless the decision is a last minute choice of the director.

Vehicles or carriers used in the studios and on location for moving the camera as it is photographing a scene range from the simple fixed, four-wheel dolly, to the 8-cylinder motor propelled camera car and the giant mobile camera crane. Where a dolly is used, whether out of doors or on the sound stage, it usually is operated on tracks. These are constructed from lengths of channelled aluminum girders or from lengths of 2" by 12" lumber. The first photo on this page shows a simple 4-wheel dolly equipped with balloon tires operating on a board track erected on a remote location site. Here the dolly is moved progressively backward while the camera follows the two riders in a closeup shot for MGM's "The Last Hunt." Note the wooden wedges that





THE TYPE of rugged camera car used for filming chase scenes for "westerns" was used to carry the cameras photographing a stagecoach for Fox.



GEORGE POLKEY, A.S.C., mounted his camera in stern of grip-controlled rowboat for dramatic scenes for "Many Rivers To Cross."

have been driven beneath the plank track to insure rigidity.

The second photo illustrates the ingenuity that was brought into play for photographing a follow shot on location for the independent production, "Storm Front," produced by Cornell Wilde and photographed by Joseph LaShelle, A.S.

C. Here the Mitchell 35mm camera was mounted on a pair of toboggans lashed together. The cameraman was then towed by grips as he photographed the man approaching on snowshoes.

The next photo shows a 20th Century-Fox camera car shooting a stagecoach scene. This converted automobile

has camera platforms fore and aft as well as above the driver's compartment and provides for mounting four or more cameras. Here, two cameras are used to cover the action in medium and closeup shots. Drivers of camera cars are specially trained, know the camera-

(Continued on Page 446)



POST BOXES will accommodate the camera crew and director as well as the camera.



HELICOPTERS are a popular mode of travel for cameras used in making aerial shots.



TRACK WORKER'S truck became camera dolly for shots for "Great Locomotive Chase."

## How To Build A Simple Tripod Dolly

Dramatic moving camera shots possible with this easy-to-build accessory.

By JAMES R. OSWALD

**I**F YOUR MOVIES lack that "extra something" required to give them professional class, try incorporating a few dolly shots in your next film production. Avoid the monotony of routine, "fixed-position" vantage points, as you move in for a dramatic closeup, follow a person walking down the street, or perhaps just shift around for new camera angles without the nuisance of constantly resetting tripod legs, all with the aid of the economical, easily-built tripod dolly described herein. These intriguing effects, and others, too, limited only by the imagination of the cameraman, are within the grasp of any movie maker who sees fit to devote a little spare time to the venture. And best of all, no special skill whatever is required for its assembly.

The dolly frame consists of regular 1"x2" screen sash lumber, which, dressed, as procured at any lumber yard, measures approximately 3/5"x1 3/4". Its construction should

(Continued on Page 442)



FIG. 1—Only these few, simple parts are required in the construction of the useful, lightweight tripod dolly pictured here.



FIG. 2—First step is to round ends of lumber, then joint at vertex. The two pieces are then nailed to form a "T," as shown in Fig. 3.



FIG. 3—Rubber-band corners are secured on the underside at the joint, then rubber center caps are screwed in place to hold the leg firm.



FIG. 4—Angle brace attached at joint shows how glue added rigidity to dolly, insure its durability in both indoor and outdoor use.



FIG. 5—Completed and ready to roll. Besides providing for dolly shots, gadget enables easier moving of camera from one setup to another.

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LOW CAMERA angle gave this compelling closeup dramatic emphasis in MGM's "The Perfect Guy Alone."

## Keep It Close!

How the proper use of closeup shots will give your films more dramatic emphasis.

By HAROLD BENSON

**R**UN throughout your latest film and check the proportion of closeups to the rest of the shots. The chances are you'll find you average less than one closeup in six shots. Yet the closeup is the film maker's greatest gift.

Consider the theatre for a moment. When the stage is filled with players, the producer has to direct the audience's eye by a strict control of grouping and lighting. Even then he cannot guarantee that everyone will concentrate on the right actor at the right moment. The slightest distraction can ruin his effect.

The film director's advantages over his stage counterpart are almost numberless, but the most important is his

unique opportunity for focusing that his audience, whether in the front rows or in the back of the balcony, see only what he wishes them to see—and see it from an angle of his own choosing. Too few amateurs appreciate the real value of this control.

We've all sat through hours of amateur productions which seem to have been shot consistently at fifty feet or so from the main action. This sort of treatment reduces a film to a tiresome and frequently meaningless bore. An audience feels cut off from the characters and detached from the action.

When you plan the photography of your next picture, allow for at least fifty per cent of closeups. This doesn't

mean nothing but facial expressions, of course, though they will probably predominate. Close shots of hands, feet and inanimate objects can be extraordinarily expressive when skillfully used.

Let your mind wander for a moment over a one-word theme. Take, for example, "Holiday." Probably half the images that rush before your mind's eye are closeups. True, you'll probably "see" plenty of distant landscapes and seascapes; but don't you also "see" a handful of sand trickling between fingers, children's feet retreating from an approaching wave and a sandcastle crumbling before the tide?

Details like these linger in your mind because they contain the very essence of holiday atmosphere. Yet they rarely

(Continued on Page 116)



AN INSTRUCTIONAL film on the use of felt letters for classroom art that was enhanced by story-telling closeups, such as the one pictured below.



THE CAMERA moved in close to show how the felt letters stood out clearly in the felt background, and are easily removable—a detail that could not be emphasized in any other way.

## ANIMATION WITH THE ARRIFLEX-16

(Continued from Page 415)

The problem and a simple design were taken to Mr. Adolph Ganser, a very fine camera craftsman in San Francisco, who further refined the idea to produce a device of extreme simplicity. It consists of a set of three-to-one reduction gears attached to a brass band fitting neatly around the motor speed control dial of the Arriflex. These gears are operated by a small handle having click stops to indicate the open and closed positions of the shutter. The unit is attached to the camera motor by first adjusting the shutter to the closed position, easily located (when the camera is loaded) through the direct view finder, which has a narrow band across the mirror surface to reduce the flutter effect during filming. When this band bisects the image in the finder, the shutter is exactly in the middle of its closed position and the animation device, with its handle in the closed position, can then be placed on the motor and locked into place by a small screw. One half turn of the handle then opens the shutter, another half turn closes it.

The only alteration to the camera itself is the replacement of the shutter control knob on the motor by the small reduction gear, a change that can be made easily at any time with a small screw driver. We have found no reason for removing the reduction gear for normal shooting when once set in place. There was some inconvenience in the manufacture of the unit due to the fact the camera was milled to the metric system, but any good craftsman should be able to overcome this difficulty. The cost of making such a unit should fall below \$40, dependent upon the quality of workmanship.

Exposures are determined by the diaphragm, duration of illumination as set on the Time-o-lux, and by the distance of the lights from the cell. Variations in color temperature which might result from extremely short exposures where the cooling light bulb may still exert effect, can be overcome by increasing the length of exposure, and if necessary, by the use of filters. In black-and-white, of course, this is of no importance.

A further refinement of the device, which we have not found necessary, but which might be desirable for any organization doing a lot of animation, would be a switch on the gear which would automatically turn the house lights off and on as the shutter is opened and closed. We may build this addition yet, the supreme luxury on a device which has already saved us over four hundred dollars.

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**PUTTING THE EDGAR BERGEN TV SHOW ON FILM**

(Continued from Page 421)

that more time is required to make a light change than when floor units are used. However, Clark now has the lighting pattern so worked out that little if any change is made during a show or from week to week. One bugaboo does prevail, however, and that is the ever-changing intensity of the incandescent lamps used. Because the lights burn for long periods at a time—are not shut off and re-lit frequently as in usual studio production practice—they gradually diminish in intensity and have to be replaced. A very close check therefore is kept on the illumination at all times.

One other lighting problem is ever-present, according to Clark, and that is the one posed by the clothing worn by the various contestants. This is an important factor that always must be taken into consideration if the photo-

graphy is to be acceptable; and as there are two to four pairs of contestants taking part in each show, the lighting must be flexible enough to accommodate all. Each Tuesday evening before the show begins, the contestants that are to take part come to the stage where they are briefed on how and when to enter, and where to stand with respect to the microphones. This gives Clark opportunity to observe the skin tones and wearing apparel of each and to arrange cues for any light changes that may be necessary when they appear before the cameras.

Clark has taken a great deal of pains to achieve pleasing lighting of the set's background. He uses criketalkers abundantly to enhance the lighting pattern here which, at the same time, sets off the sponsor's name which hangs prom-

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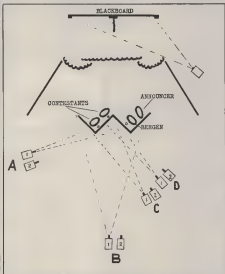
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rently above the set. Incidentally composition of the lettering in the sponsor's name panels (there are two, alternating every other week—Fragdair and L. & M. Capompolio) causes no small problem in lighting. The letters are coated with reflective material to enhance their brilliance, and the set lighting has to be precisely adjusted in order to prevent glare from the panels reaching any of the camera lenses.

Any notable changes that Clark makes in the lighting has to be carefully charted for the reason that there are invariably pickup shots to be filmed after each show for shows filmed a week or several weeks earlier. Because any change in the lighting of such shots would show up sharply when contrasted with the rest of the show's footage, Clark always refers to his lighting log for that specific evening and makes sure that the same lighting prevails for shooting the pickup shots.

Pickup shots are those filmed after the main show has been photographed and replace takes that include "hoo-boos" or mistakes by Bergen, announcer Leonard or the contestants. Most pickups are shot in closeup to make it easy for the film editor to insert them into the show in the most unobtrusive manner. Unlike with theatrical motion pictures, when anyone on the "Do You Trust Your Wife?" show forgets a

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word on a line or otherwise makes an error, the cameras keep right on rolling and the show goes on. Pickup shots filmed later take care of such errors.

Right now Edgar Bergen, Dan Clark, director Jim Morgan and all the others who work together to put this rollicking TV program on film each week are on vacation. The show resumes shooting late in August when the company will begin filming the 14 shows remaining on its 1956 schedule.

In the meantime, it can be expected that Director of Photography Dan Clark will have some new ideas for further enhancing the photography.

"Our next major improvement," he says, "is to acquire T-stop lenses for

all our cameras. With the cameras thus equipped, we can insure uniformity in all our camera negatives: lighting values and meter readings will then be valid for all. Without the use of T-stop lenses, such uniformity is impossible in a multiple-camera undertaking."

On this proposed improvement Edgar Bergen heartily agrees. An avid photography enthusiast and no mean cinematographer himself (Bergen owns several professional Deane and Deane cameras; is also a member of the A.S.C.), his understanding of the director of photography's problems has made it easier for Clark to achieve the success that he has in putting "Do You Trust Your Wife?" on film.

## KEEP IT CLOSE

(Continued from Page 432)

find their way into holiday films. And this is equally true of the atmospheric closeups of almost any setting.

Close shots tend to be regarded as useful only for "sleek" cuts or reaction cutaways. Actually this last use emphasizes why few closeups are ever wasted, while long shots often have to be relegated to the waste bin if they're not to upset the balance of the film. There is practically always some place for closeups, even if it's not quite the spot that was originally intended.

For instance, you may shoot a scene for a drama at a fairground stall. A man studies the ticket which may win him a substantial prize. While the pointer spins, he drums his fingers on a ledge.

Perhaps when you come to edit this sequence you find that you have plenty of material to build up tension by cutting between the man, the prize, the pointer and onlookers. A big closeup of drumming fingers might make the sequence too heavy for a comparatively minor plot incident.

But this is just the kind of closeup that has a hundred uses. Instead of drumming it is as wasted, like it away among your stock shots. Eventually you'll find a need for it. A husband waits for his wife. You've taken shots of him looking at his watch and pacing up and down, but you haven't enough material of sufficient variety to interest with the shots of his wife as she hurries towards their rendezvous. If you haven't thrown those drumming fingers into the waste bin, here's an ideal chance to use them.

Alain Pol, the talented French director, has made a twenty-minute short which tells the story of a man's entire life solely through shots of hands. His "Jeux des Mains" takes the idea rather too far, of course. Nevertheless, it does

prove the extraordinary power of the closeup, and confirms that the face is not necessarily always the truest guide to emotion.

A girl is being questioned by her father. He demands an answer again and again. She looks blank, expressionless. What is she thinking? Her face may disguise her thoughts, but her hands, twinging at a handkerchief, clenching a fist or digging the nails into her own flesh, can provide the clue. Here the closeup is all-important.

But such examples, you may be thinking, are special cases which do little to justify the contention that at least half the shots in a film should be closeups. Let's break down an imaginary sequence from treatment into shooting-script and see how essential close shots can be if interest and tension is to be maintained.

George Brown returns home late one evening after several drinks with his friends. As he approaches the house, he notices a light in his window. When he bursts in he discovers two strangers sitting in his chair, smoking his cigarettes and drinking his whisky.

So much for the treatment. (No, don't ask for the explanation. I don't know the answer—but the situation might well bear developing into a short comedy, or perhaps a thriller.) Let's start the shooting script where George leaves his friends to return home. Let's assume, too, that this is the opening sequence of the film, and that no details about George or his home have yet been established.

Opening shots are almost traditionally long shots. The most notable exceptions are the openings of G. W. Pabst's films, where he usually selects one significant detail in a set or location, opens with it and gradually discloses the rest of the scene. But the more orthodox



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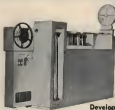
convention in the L.S.—M.S.—C.U. routine, which at once establishes scene, characters and details in that order.

Here the best opening that is probably a L.S. of George's face is in a bit doorway, waiting goodnight to his friends. The door shuts and we cut to a C.U. of George's face, lit by the light shining through the glass panel of the door. His smile fades. Another C.U. shows his fingers fumbling for a cigarette. He drops the packet.

In M.S. George goes down on his hands and knees to search. A facial C.U. shows him muttering to himself. In the next C.U. we see his hands groping clumsily along the path.

Back to a M.S. as he straightens up, a little uncertainly, still without the cigarettes. He walks out of frame, equally uncertainly. A M.S. passing to L.S. as he turns out of the gate shows him guiding himself by putting the hedge with one hand as he ambles away from the camera.

A C.U. of a cat perching on top of the hedge. George's hand enters the frame and lands squarely on the back of the cat, which scurries off in alarm. A quick C.U. of George's startled face as he reacts—then a M.S. as he steps hastily back and tries to pull himself together. He taps a handkerchief from his pocket. As he does so an envelope flutters to the ground. (To Be Continued)



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A C.U. of the torn envelope discloses George's name and address. His house number is 134. George's hand enters frame and retrieves the envelope. Another M.S. shows him tucking it back in his pocket and setting off once more in the same direction. A C.U. of the gate approaching, still none too certainly. As he reaches C.U. position, he stops with his hand on the gate, gazing beyond it.

A M.S. shows a lit window. George, in C.U., looks bewildered. He approaches the door (L.S.), and stares hard at the number (C.U.). Eventually he reaches for his keys (C.U.) unlocks the door and enters (C.U.).

A C.U. of an interior door being opened discloses, in L.S., a man and girl talking earnestly. George looks more mystified than ever (C.U.). He studies the man (C.U.) and the girl (C.U.). Suddenly he looks indignant (C.U.). He stares at the glasses on

the table (C.U.), the bottle (C.U.) and the cigarette box (C.U.). He frowns (C.U.) and approaches angrily, but neither seem to notice him (L.S.).

Out of those thirty shots, nineteen are straightforward closeups, five medium shots, three long shots, and three vary from one to another. Yet it is doubtful whether an audience would remark on the preponderance of closeups. A director would, in fact, find it difficult to over-use close shots here.

Here even medium shots and long shots should be close—close enough, that is, to show essential action without letting the background distract. Beginners frequently dwarf their characters by keeping them in the middle of the frame. Each time you line up for a long or medium shot, take a look around the extreme edges of the frame. If what you see is unnecessary to the scene, get in closer. Remember, audiences want to get right in to see what's going on. Keep in close and you'll keep them happy.

## THE DEPTH OF FIELD OF CAMERA LENSES

(Continued from Page 424)

square of the focal length. This argument takes no account of the fact that the size of the image varies with the focal length, and that a smaller circle of confusion is required for comparable quality in a small picture than in a large one. Furthermore, the lack of depth of field is seldom troublesome when the camera is focused on an object at the hyperfocal distance, but rather when it is focused on a nearby object. Under the latter conditions, the quantity  $r$  in the denominator of equations (1) and (2) becomes negligible compared with the quantity  $ap$ . Hence equations (1) and (2) become simply

$$d_1 = - \frac{rP}{ap} \quad (7)$$

and

$$d_2 = - \frac{rP}{ap} \quad (8)$$

and the total depth of field is

$$d = d_1 + d_2 = - \frac{2rP}{ap} \quad (9)$$

The ratio  $P/p$  in the above equation can be transferred to corresponding quantities in the image-space by means of the well-known relationship in optical theory that

$$m = - \frac{p'}{p}$$

where  $P'$  is the distance of the film from the exit-pupil of the lens and  $p'$  is the radius of the exit-pupil. Equation

$$(9) \text{ may then be re-written as follows:}$$

$$d = d_1 + d_2 = - \frac{2rP'}{m'p'} \quad (10)$$

Now, any comparison of the depth of field of two lenses must be made on a basis that insures the same exposure in both cases, since manifestly any desired depth can be obtained by reducing the lens aperture. It is a well-known fact that the amount of illumination on the film in the image of an extended object is determined by the ratio  $P'/p'^2$ . Assuming a constant value for this ratio, the depth of field is seen from equation (10) to vary directly with the permissible size of the circle of confusion  $r$  and inversely as the square of the magnification. This result is independent of the particular form of the lens. In other words, any claim that one lens has a greater depth of field than another is absurd. If experimental tests seem to indicate a difference between lenses, either the two lenses were not used at the same effective aperture and magnification, or the image quality of one is inferior to that of the other and its depth only appears to be greater.

The lack of depth of field is apparent to the motion picture audience when the size of the circle of confusion on the screen exceeds a certain limiting value. Let us designate by  $R$  the radius of the largest permissible circle of confusion on the screen. Then

$$R = m'rp'$$

where  $m'$  is the magnification between

the negative and positive in printing (in contact printing this quantity is 1) and  $m'$  is the magnification of the film on the screen in projection. Substituting for  $r$  in equation (11), we have

$$d = \frac{2R}{m'} \cdot \frac{P'}{P} \quad (11)$$

Let us assume now an object or actor of height  $h$  in the plane on which the camera is focused. The corresponding height of the image on the screen is

$$H = hm' \quad (12)$$

Let us designate the over-all magnification between the object and its screen image by  $M$ , where

$$M = \frac{H}{h} = m'm'P' \quad (13)$$

With this substitution, equation (11) becomes

$$d = \frac{2R}{mM} \cdot \frac{P'}{P} \quad (14)$$

We see, therefore, that for a fixed value of  $R$  and  $P'/P$ , the depth of field, as seen by the audience, varies inversely as the original magnification in the camera and the over-all magnification  $M$ . In other words, it is just twice as hard to obtain sufficient depth when the actor's head is to be ten feet high on the screen as when it is only five feet high. The advantage of making  $m$  small will be dealt with presently.

Let us consider the case of standard 35mm practice where both the negative and positive film are of this width and the printing is done by contact. Equation (14) shows that, for a fixed over-all magnification  $M$ , there is a definite gain in making the magnification  $m$  as small as possible. This implies either using camera lenses of short focal length or placing the camera at a great distance from the actors. For the same over-all magnification  $M$ , equation (13) shows that  $m'$  must be increased in proportion to the decrease in  $m$ .

In other words, the greatest depth of field is seen to result by making the original negative with as low a magnification as possible and relying on subsequent enlargement to provide the required over-all magnification. The

(Continued on Page 442)

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## EDITING TECHNIQUE FOR TV FILMS

(Continued from Page 417)

on some other appropriate action or object. This will permit "parallel" cutting, "cutting back" or other editing techniques.

4. In the case of so-called demonstration films, the demonstrator must synchronize word and action, in the sense that what he is saying is appropriate to what he is doing. For instance, if there is a tendency to "telegraph" the most important action by talking about it before actually doing it, editing difficulties may arise. Thus, it might be desirable to go to a closeup of a certain action only to find that the accompanying commentary is about something else to come. One will be completely inappropriate to the other.

Experience has shown that it is often very difficult to match short sections of "lip sync" portions of 35mm negative and 16mm reduction work print. This is especially true in cases where the action is very hurried and where the actor tends to speak in such a way that lip movements are not clearly defined. Much to one's chagrin, those portions of a film may be found slightly out of sync in an answer print.

A little trick that will overcome this that is definitely worth the slightly extra cost is to edge-number in sequence, by hand, the selected "lip sync" takes only. Starting with the closed claspstick frame, the numbers are scribbled or inked every foot or so in the sound track area of the 35mm negative. A second reduction print of the selected takes is made on 16mm single-perforated stock. While in the printing process all sound apertures are kept open so that the scribbled numbers will register on the print. These numbers are then used for matching purposes.

Some producers may find it economical and convenient to record sound on 16mm tape, shoot on 35mm film, make a 16mm reduction work print and then edit picture and track in 16mm. Negative matching is then done between the 16mm original and the 16mm work print. For spot commercials, which are not long, this method has some economic advantages. The major difficulty comes during the matching process because the work print, being a reduction print, will not have edge numbers which can be used as a matching aid.

The procedure described below substitutes a "mechanical" method of matching for one of "matching by eye," which is always tiring and very readily subject to errors. For this two 16-35 synchronizers are needed. A specially designed one in which two 16-35 sections can be coupled or decoupled when

desired is a very desirable instrument for this purpose.

In editing, all cuts are made in a splice without losing frames. The head and tail frames are kept at hand in a barrel and are marked to match the adjacent frame in the work print, for quick identification, as shown in Fig. 1.

When the negative is to be matched to the cut work print, the head trim of the first scene, which will have the "claspstick" on it, is placed in the 16mm channel of one synchronizer and the negative in the 35mm channel, in sync, by lining up the "closed claspstick" frames. The two are run down until the end of the trim is reached. The corresponding frame line on the negative is scribbled. The next frame will correspond to the first frame of picture in the work print. The work print is now inserted in this first synchronizer (the trim is run out) with the first frame of picture in sync with the scribbled frame of the negative. The negative may be cut and spliced on to prepared leader. The work print and negative are in sync and are run down to the next splice on the work print. The negative corresponding to this frame is scribbled and the synchronizer is locked in place.

The head trim of the next scene and the matching negative are placed in the second synchronizer or in the second section of the decoupling device described above. Again, the two are rolled down in sync to the tail of the head trim and the next frame on the negative (first frame of the scene coming up in the work print) is scribbled. The negative of the previous scene is run out of the first synchronizer and that of the second scene replaces it. Making the match at this point is simply a question of lining up the splice in the work print with the scribbled mark on the frame line in the negative. The negative sections can be spliced immediately, or cut and taped for splicing later. This process is repeated for each scene or for each section of a scene, if there has been any cutting back or intercutting. If care has been taken that no frames were lost in cutting and that all ends of scenes and trims have been correspondingly marked for easy identification, there should be no difficulty in maintaining a mechanical synchronization, and the negative should be perfectly matched to the work print.

This system of matching is especially handy where the only action is that of speech, in which case matching by eye is especially difficult, or where the difference in action between frames is so slight that it is practically impossible to determine by eye.

## PHOTOGRAPHIC ASSIGNMENTS

(Continued from Page 282)

● **HAROLD WILLIAMS, ASC**, "Wyatt Earp" (Technicolor; VistaVision) with Hugh O'Connell, Frank McDonald, director

### PARAMOUNT

● **ERNEST LAMON, ASC**, "The Love of Omar Khayyam" (Technicolor; VistaVision) with Charlton Heston, Anne Baxter and Gilbert Roland, William Dieterle, director

● **LEONEL LINDON, ASC**, "The Lonely Man" (Technicolor; VistaVision) with Jack Palance and Elaine Allen, Henry Levin, director

● **DANIEL FAIR, ASC**, "Hollywood or Bust" (Technicolor; VistaVision) with Dean Martin, Jerry Lewis and Pat Crowley, Frank Tashlin, director

● **SAM LEVITZ, ASC**, "Flamingo" (VistaVision and Color) (Being photographed in Spain) Don Siegel, director

● **JACK WARNER, ASC**, "Search for Bride Murphy" (VistaVision) with Tanya Marlow and Lena Horne, Noel Langley, director

● **RAY JUNE, ASC**, "Tummy Farm" (Technicolor; VistaVision) with Audrey Hepburn and Fred Astaire, Stanley Donen, director

● **CHARLES LANE, ASC**, "The Runaways" with Burt Lancaster and Katharine Hepburn, Joseph Anthony, director

● **LOYAL GORDON, ASC**, "The Barker-Karpis Story" (VistaVision & Technicolor) with Donald O'Connor and Ann Blyke, Sidney Sheldon, director

### REPUBLIC STUDIOS

● **ED COLEMAN, ASC**, "Dragnet" TV, (Sherry Print) with Jack Webb, Jack Webb, director

● **BOB THACKER, ASC**, Kaber Alvarado commercial, TV, Pete Adams, director, TUP commercial, TV, James Elgus, director

● **HEN KIRKPATRICK, ASC**, "The Millionaire" TV, (Don Feddersen Prods.) Solley Martin, director

● **WALTER STREIBER, ASC**, Cheer commercial, Bud Springsteen, director

● **JOHN BINKELL, ASC**, "Soldier of Fortune" TV, (Revue Prods.) Richard Irving, director, Jane Wyman Show, TV, with Jane Wyman, Sid Lanfield, director, TUP commercial, TV James Jager, director

● **LESTER STARR, ASC**, "General Electric Theatre" TV, (Revue Prods.), Robert Stevenson, director

● **DONALD B. CLARK, ASC**, "Do You Trust Your Wife?" TV, (Don Feddersen Prods.) with Edgar Bergen and Charlie McCarthy, Jim Morgan, director

● **JOHN SMITH, ASC**, "Buffalo Green" (WarnerColor) with Alan Ladd and Virginia Mayo, Gordon Douglas, director

### PARNE BEO

● **GEORGE BRUNANT, ASC**, "Four Star Play House" TV, (Four Star Prods.) Various directors, "Joy, Jeopardy" TV, (Jeopardy Prods.) with Joanne Carson and Allen Jenkins, Lee Goodson, director

### WFO

● **PAUL VOGL, ASC**, "Public Figure Number One" with Red Skelton and Norman Macdonald, Norman Macdonald, director

● **JOSEPH BERG, ASC**, "Son of the Arrow" (Eastman Color, Wide screen) (showing at St. George, Utah) with Red Skelton and Sonnie Marshall, Samuel Fuller, producer-director

● **WILLIAM SUTHER, ASC**, "Bonds of Joy" (Eastman color, wide-screen) with Eddie Fisher and Debbie Reynolds, Norman Torgog, director

● **WILLIAM SCALL, ASC**, "The Day They Gave Bonds Away" (Eastman Color, Wide screen) with Glynis Johns and Candice Marshall, Allen Reisner, director

### RAI SOACH STUDIOS

● **JACK MACDONALD, ASC**, "Code 3" TV, Vernon director

● **EDWARD FREDERICK, ASC**, "The Charlie Farrell Show" TV, with Charles Farrell, Red America, director

● **PAUL JAMES, ASC**, "Stories of John Nesham" TV, with John Nesham, Various directors, "Stories Directing Flashes" TV, Various directors, "The Gale Storm Show" TV, with Gale Storm and ZaSu Pitts, Alex Gottlieb, director

### SUNSET STAGE

● **RAY FRANKSON, ASC**, State Farm Mutual Insurance commercial, TV, (5 Star) Lewis Hunt, director

### 20TH CENTURY FOX

● **WILFRED CLINE, ASC**, "The Lost Wagon" (DeLuxe Color, CinemaScope) (showing at Sedona, Ariz.) with Richard Widmark and Tommy Rettig, Delmar Davis, director

● **LENN SEASHORE, ASC**, "Red Things in Life Are Fun" (Technicolor, CinemaScope) with Gordon MacRae and Sherie North, Michael Curtiz, director

● **LEO TAYLOR, ASC**, "Between Heaven and Hell" (Technicolor, CinemaScope) with Robert Wagner and Terry Moore, Richard Fleischer, director

● **JOE MACDONALD, ASC**, "Teenage Rebel" (DeLuxe Color CinemaScope) with Ginger Rogers and Michael Rennie, Edmund Goulding, director

● **WALTER STREIBER, ASC**, "Swordswich in Furs" (Regal Films) (CinemaScope, black & white) with Forrest Tucker and Man Buchard, William Claxton, director

● **JACK HILGREN, ASC**, "Amazons" (DeLuxe color, CinemaScope) (showing at London) with Ingrid Bergman and Yul Brynner, Anatole Litvak, director

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● **ANTHONY ANGLIO, ASC**, "Tammy" (Technicolor; CinemaScope) with Debbie Reynolds and Louis Nelson, Joseph Pomeroy, director

● **CLAYTON STONE, ASC**, "The Incredible Shrinking Man" with Gregory Williams and Randy Stuart, Jack Arnold, director

● **RENNAL WHITE, ASC**, "Maver Corp." with Tony Curtis and Martha Hye, Duke Edwards, director

● **WILLIAM DENTON, ASC**, "Immelde" (CinemaScope-Technicolor) (showing at Munich) with John Allyn and Rosanna Evans, Douglas Kirk, director

● **MURRAY GREENMAN, ASC**, DuPont commercial, TV, with Frank Leiby, Wil Cowan, director, "The World and Little Willie" (Technicolor) with Maureen O'Hara and John Forsythe, Jerry Hopper, director

● **SOCIETY WILLIAMS, ASC**, Febuff beer commercial, TV, Jack Daniels, director

● **IRVING GLASSBERG, ASC**, DeLuxe commercial, TV, Wil Cowan, director, Musical short with the Jerry Gray orchestra, Wil Cowan, director

### WARNER BROS

● **ROBERT BURNS, ASC**, "The Wrong Man" (Alfred Hitchcock Prod., shooting in New York City) with Henry Fonda and Vera Miles, Alfred Hitchcock, director

● **FLORIO CARPIS, ASC**, "The Bad Man and the Sea" (WarnerColor, wide-screen) (showing in Cuba) with Spencer Tracy, Ford Zachary, director

● **TIM MCCOY, ASC**, "The Girl He Left Behind" with Tab Hunter and Natalie Wood, David Butler, director

● **HAROLD EDISON, ASC**, "Anthology Series" TV, with Kay Freeman and Don McGowan, Roger Rep, director

● **HAROLD STONE, ASC**, "Cheyenne" TV, with Clint Walker and Faye Spain, Lester Martinson, director

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magnification in projection must be twice as great to keep the overall magnification  $M$  the same. It is claimed, with some justice, that this reduction process reduces the graininess and that the magnification in projection can therefore be increased over what is possible when the print is made by contact. If the reduction in graininess is one-half, so that the magnification in projection can be doubled, the depth of field of pictures produced in this way is the same as with the two methods that have been discussed previously. It may be remarked in passing that it is no more difficult to design a projection lens to cover 35mm film than one to cover the 16mm film if they are of the same relative aperture. But, with the same relative aperture, the illumination on the screen with the 35mm film will be approximately one-fourth as great.

## SUB-ZERO CAMERA OPERATION

(Continued from Page 412)

permit re-threading, and was not replaced for the H & D test. The camera was then allowed to stand with the base heaters operating but without the insulating protection or heat of the blanket. It took only 7 minutes to make camera operation impractical! The heating blanket was again put on, the crew removed and the refrigeration controls set for  $-35^{\circ}$ . After 15 minutes in this man-made blizzard (blowers in the chamber circulated the air very rapidly to facilitate the heat transfer) it was obvious that the heaters and insulation were quite adequate for the temperatures we expected to meet. However, it was desirable to test temperatures exceeding our requirements, so the refrigeration controls were set for  $-50^{\circ}$ . Fourteen minutes at this setting indicated that the camera insulation and heating equipment were still adequate. The crew then re-entered the chamber and shut another H & D focus test.

These tests and data are far from exhaustive, but they did give us sufficient information to allow us to approach our sub-zero location with reasonable confidence.

A brief analysis of the data and some general observations may be of interest.

All temperatures are expressed in degrees of Fahrenheit.

Heating pads were especially important to the lens mount, tachometer and motor. (The lens mount actually froze at one time while the heating pad was removed.)

The film was very "tender" and tore very easily at  $-20^{\circ}$ . At  $-43^{\circ}$  it was checked (several pieces were left out and exposed to the frigid air in the

chamber) and was found to be very brittle! It shattered like glass.

There was a very definite gamma loss at approximately  $-20^{\circ}$ . A slight loss in color saturation could be expected to accompany this gamma loss. An exposure correction is also indicated.

The motor cables were frozen stiff at  $-50^{\circ}$ . The use of military cables designed for use at these temperatures would be desirable at such extremes.

The camera lens focus was apparently not affected.

No static was observed.

The camera great head froze up. The use of "aviation gamma" is necessary.

The Universal finder and the glass filter in front of the lens both froze up when warm damp air entered with the camera crew. The lenses and the filters must therefore, be very carefully washed.

The current drain on the camera heating units never at any time exceeded 7 amperes (at 110 volts). Therefore, a 750- or 1000-watt auxiliary generator should be adequate for camera heating.

The battery temperature probably did not fall much below freezing during the test. Insulation against the cold for long exposures is indicated. Heating may be necessary. (The thermocouple in the cover of battery No. 2 was evidently near an air leak in the battery cover, as it usually indicated temperatures very near those of the chamber.)

The lens thermocouple fell off the camera apparently at about 3:10 PM and was not replaced until 3:35 PM. Therefore the lens temperature data recorded between these times is false.

The crew reported that under the blizzard conditions simulated in the cold chamber face masks would be necessary, and pocket warmers for the hands desirable. The crew Inval Air cold weather Pecs made by the U. S. Rubber Co. were most effective.

George and Elmer had cold feet even with heavy socks, boots and overshoes. (He maybe Gene has warm feet?) You choose your own gear! Set you in Alaska (or Colorado) sometime.

## TRIPOD DOLLY

(Continued from Page 433)

be of a size tailor-made to the triangular expense of the particular tripod with which it will be used, the tripod legs being extended sufficiently for rigid camera support. The necessary hardware used in building the dolly (Fig. 1) may be purchased at most hardware, and some 5- to 10 cent stores.

When specific dimensions have been established for individual requirements, the "tail" section of the dolly frame, which joins with the cross piece at the

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center to form the equilateral triangle, is cut exactly one-half the length of the cross member to provide the desired symmetry. Rounding out the ends of the boards that form the three "legs" of the frame gives a more professional appearance to the unit, and serves to protect furniture against damaging bumps when the dolly is used indoors. Painting or varnishing is done at this stage (Fig. 2), prior to mounting the various hardware, or, if preferred, after the two sections are nailed together, for which procedure two 2 1/2" casing or finishing nails are used.

After the finish has dried, three rubber-wheeled casters of the flush-mounting type, with wheels measuring 1-1/2" in diameter, are attached to the ends of the dolly frame, directly over which are fastened three rubber caster cups (Fig. 3) into which the tripod legs will rest. These cups have a diameter of about 2" on the outside (inside they approximate 1-1/4" at the top, tapering to around 3/4" at the bottom). A single screw, through a hole drilled in the center of each cup holds it firmly in place.

The addition of a couple of angle brackets (Fig. 4) at the joint, previously nailed, will greatly reinforce the unit at this point of strain. With this the dolly is complete and ready to "roll." Used discreetly, and with reservation, as all clever camera effects should be your allies, will now take on a new touch of professionalization, as the cine camera closes in for a screen-filling portrait, backs away for a wider angle of view, or whatever the situation warrants, gliding smoothly over any level surface.

## INTERVAL TIMER

(Continued from Page 423)

the vibrator arm of the buzzer. Thus when the timer points make contact, the buzzer operates and drops the mercury switch to start motor. We still have to stop the motor again with the "lid" back in the open position, so a second mercury switch is wired in parallel with the first. When number 1 mercury switch is dropped the motor starts and turns the disc. Almost immediately number 2 mercury switch is raised to ON position by disc edge. A pin on the disc then knocks number 1 switch back to OFF position, and as the disc continues to rotate, number 2 switch drops into cut-away back to OFF position (See Figs. 5 and 6).

In Fig. 4 the mechanism to trip the single picture button on the camera can be seen. This arrangement will vary with the type of camera used. We used a bowden cable connected from solenoid

to the release mechanism. When the solenoid is energized for a split second, it pulls the cable, releasing a spring loaded arm connected to camera button. The spring tension can be adjusted to be just enough to release camera button. Too vigorous tension here can seriously damage the delicate camera mechanism.

Another arm on the driving disc is adjusted to quickly tip a micro-switch wired to the solenoid. Or the micro-switch can be mounted on the end of the box and when the lid closes it trips off the switch. If longer intervals than one hour are required for plant growth, another disc can be fitted to the spindle that drives the hour hand of the clock. Thus, 32 pins on this disc would give one-hour intervals; 6 pins two-hour intervals and so on.

Our whole unit is operated on 240-volts A.C. and we believe it to be as simple as it is possible to build this type of equipment. It is entirely automatic. Once the subject is set-up and the unit switched on it operates continuously until it is manually switched off. Wiring diagrams are not given here as we do not encourage novices in electricity to do their own wiring. Where high voltages are concerned (240 volts here in Australia) it is advisable to have a skilled electrician undertake all wiring.

## MOVING-CAMERA SHOTS

(Continued from Page 429)

man's problems in this kind of photography and cooperate as a team to get the shots desired.

Making a dolly shot on water is usually accomplished by mounting the camera on a raft or in the stern of a rowboat, as was done in the fourth photo (above) to photograph Robert Taylor swimming a creek for a scene for MGM's "Many Rivers to Cross." Grips on the riverbank handling tow lines held the boat against the river current and controlled its travel as Taylor swam toward it.

The most frequently used camera carrier for travel and dolly shots is the hand-tired dolly operating on a sectional metal track, such as the one shown in the first photo (bottom) on page 429. Here Director Eli Kazan, seated on box on dolly, and members of the crew watch as Eli Wallach and Carroll Baker release a scene for "Warner Brothers' "Baby Doll." Director of Photography Boris Kaufman, A.S.C. (behind Kazan) using a viewing filter checks the lighting as he prepares to shoot the scene following the rehearsal. As the players move, the camera will be moved toward them. Note guide stick extending from dolly toward players that will

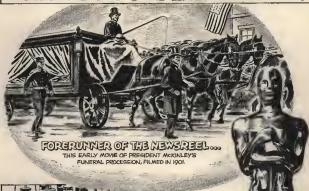
(Continued on Page 441)







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